THE AMERICAN RIFLEMAN

Peter Peepsight shoots on the wrong "target"

SO YOU'RE JOINING THE AUXILIARY POLICE? MAYBE YOU'D LIKE ME TO GIVE YOU A FEW POINTERS ON PISTOL SHOOTING.
OKAY, BUT....
FIRST OF ALL-GRASP THE GRIPS WITH THE LAST THREE FINGERS AND THE BACK OF THE PALM OF THE HAND.... FOREFINGER ON TRIGGER....AND TIP OF THE THUMB UP ON THE LATCH.
SAY, LISTEN, I PUT IN A STRETCH...
NEVER STRETCH WHEN YOU AIM. THE ARM SHOULD BE FULLY EXTENDED, BUT DON'T LOCK AT THE ELBOW.
CERTAINLY NOT! YOU SEE....
SAY, A SMART ALECK LIKE YOU BETTER KNOW ABOUT SAFETY PRECAUTIONS. THE FIRST RULE IS: DON'T POINT A GUN AT ANYTHING YOU DO NOT INTEND TO SHOOT.
THAT GIVES ME AN IDEA
AND BEFORE LOADING, ALWAYS LOOK THROUGH THE BORE TO SEE THAT IT'S FREE FROM OBSTRUCTION.
I'M LOOKING AT ONE RIGHT NOW, BROTHER. I'VE BEEN FIRING HANDGUNS IN THE MATCHES AT PERRY FOR THE LAST TWENTY YEARS.
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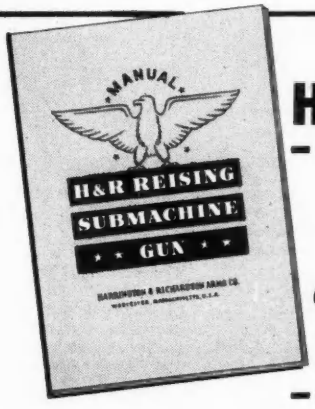

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The *Official Journal of The National Rifle Association of America*

AMERICAN RIFLEMAN

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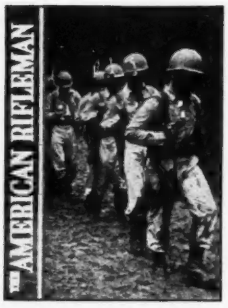

THE COVER: "Riflemen in the Jungle," our lead article for this month is also our cover subject. The mud, the thick brush, the narrow jungle trails, the necessary camouflage is described in the story, but with the help of the U. S. Army Signal Corps photo and the color engraving by Southern-Standard of Washington, D. C., our cover makes it a near reality.

OUR AUTHORS:

Sgt. Joe McCann, pen name for an officer in one of Uncle Sam's parachute organizations, authors "Riflemen in the Jungle" for this issue, following his return to the States after a serious parachute accident. A paralyzed leg will impose limited service for some time. During that convalescence we hope to have the benefit of some more of his military writings.

J. B. Nealey is a civilian writer for the Ordnance Department, listed as Advisory Specialist. An excellent source for articles on current developments within Ordnance, we also rely on him for those things which can be told as soon as they are taken off the restricted list of censorship.

Harry F. Lynch, who writes about the new M-1 Carbine, is Senior Ordnance Engineer, Rifle Section, Small Arms Branch of Ordnance. He gives us some more information, now approved for release, about the workings of a gun we have heretofore only been able to mention in general terms.

E. Baden Powell is a metallurgical research specialist of Los Angeles, Calif., who applies his scientific turn of thinking to our story, "It Ain't Necessarily So,—"

R. C. Skaggs, authority on reloading and an ardent experimenter, hails from Sacramento, Calif.

Milton McQueary, Colorado, is about the nearest approach to be found these days to the old professional hunter. He has made coyote hunting a full time and profitable business through many a winter. He will be remembered for his interesting series in the RIFLEMAN some two years ago—"Coyote Experiences."

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Riflemen in tha

By SGT. JOE McCANN

UNTIL HIROHITO DECIDED to sneak into the ring of World War II, the gentle art of jungle fighting had been for generations in a state of disrepute among practically all the heavyweight armies of the world. It's not hard to see why.

Europe and North America, where practically all the large-scale wars with up-to-date (that date) weapons of the last two centuries had been fought, boasted only a few small patches of jungle, so insignificant that they could not, by any stretch of the imagination or of strategic developments, attain any importance to the decision.

As a result, the whole matter of training for jungle combat was sadly neglected. Some of the minor-league armies—those of Peru, Siam, Mexico and Brazil, for example—have always carried out extensive jungle training, as a matter of geographical necessity. But it took Japan's masterful swing down under and along the southern coast of Asia to restore the prestige of jungle fighting to its deserved place in the minds of the world's military big shots; and, incidentally, it certainly did a lot for Japan's military prestige in general. The world-wide aspects of the most globe-encompassing war in all history also helped bring it into focus, with the loss of Singapore and Hong Kong directly through jungle action sending important repercussions into the grand strategy of both sides.

". . as long as the action is restricted to the nipa palms, the water vines and the mat grass, it's rifleman against rifleman and the best jungleer is dead sure to win." (Left) Our jungleer smears mud on face and hands which is just as effective as green paint Japs use.

And so, today, things are different. Division after division of the American, British and Chinese armies are receiving intensive training with a view to eventually tossing the Japs out of their newly-conquered territory.

World War II will see more jungle fighting before it ends than it has seen up to now—probably more than the world has ever seen before. The Philippines must be retaken, plus dozens of East Indies islands. The recovery of Hong Kong and Singapore is vital to victory. In short, everything the Japs have done must be undone.

When this happens, the tanks, railroad artillery, and heavy bombers, which have enjoyed the limelight up to now, will have to take a fifty-five cent seat and let the riflemen (who have won every war so far) have the center of the stage for the last act—the climax of the Big Show.

In the jungle, the rifleman is king. Artillery, light and medium, can move on the better trails about as well as foot soldiers, but it is of little use in the jungle itself, so the incentive to take it there is usually missing.

The Japs brought tanks and artillery through the jungles to aid in taking Singapore, but those weapons were not

Jungle

WORLD WAR II WILL SEE MORE JUNGLE FIGHTING THAN EVER BEFORE. AND HERE'S WHERE THE RIFLEMAN WILL BE KING

for use in the jungle itself. Imagine artillery trying to register on a suspected target eight miles away, when the fire-control observer can't see more than fifty yards in any direction. And picture an iron behemoth charging about in the thickest growth, trying to flush a rifleman who is lying perfectly still under a log and carefully suppressing a give-away chuckle.

No, as long as the action is restricted to the nipa palms, the water vines, and the mat grass, it's rifleman against rifleman, with nothing heavier than a .30 caliber water-cooled machine gun thrown in. And the best jungleer is dead sure to win.

A good rifleman is not necessarily a good jungle rifleman. When he has become a crack shot on the range, and has learned a bag of tricks under simulated battle conditions on the good old United States terrain, he is then ready to begin—begin, I say—to learn jungle fighting.

But before he can even be shipped off to the tropics to begin this training, he must undergo an important selective ordeal, consisting of a series of inoculations against the insidious diseases which lurk in the steaming lushness of every jungle. Occasionally one of the series will throw a man; he's marked "Not Adaptable to Jungle Service" and his outfit moves on without him.

Then, once it is shaken down at its new base in the tropics, an organization is sure to give up another handful of men. One will turn out to be especially subject to dhobie's itch. His armpits and crotch will get painfully raw, and stay that way despite a series of treatments which army medicos have developed to a point where they can cure better than ninety-nine per cent of the victims.

One or two will contract cystitis, which is concentrated misery in a highly refined state; those who do not respond to treatment must be sent back to a likelier climate. Others come down with malaria despite fifteen grains of quinine a day. It's not the kind of malaria found in the U. S.; it can kill a man *dead* in forty-eight hours.

By the time the tropical misfits are weeded out, the rest of the unit has been given training in the poisonous plants of the region, learned to recognize deadly snakes and lizards, accustomed itself to drinking water with a full-bloomed chlorine flavor, taken short hikes with light packs into the fringe of the nearest jungle, begun to develop a leathery tan under the blazing sun, picked up a few Spanish, Tagalog, or Malay phrases, and in general prepared itself for a real jaunt into the heart of the jungle country for an extended maneuver.

Our novice jungle rifleman invariably wants to discard his thick, heavy, body-covering "rompers" and plunge into the jungle in short-sleeved shirt and knee-length pants. Once is enough for him to realize that abbreviated khaki is for garrison duty only. His herringbone twill cotton coveralls, a rich green when new, soon fade along seams, and develop a mottled dinge which he will learn to be grateful for as a long step toward camouflaging him into his background. He will be glad to keep the sleeves and legs rolled down despite the heat, after a thorny thicket has rasped his bare flesh. And he will learn to button the cuffs tight at wrists and ankles before going to sleep at night, to keep out fever-carrying ticks, ants, lizards, spiders and what have you.

The jungle is the white man's unremitting enemy. Not tactically, of course, for the seasoned jungleer can attack a platoon, or even a battalion, single-handed; inflict a few casualties, make the outfit deploy, and then vanish into the most perfect concealment anywhere on the face of the earth. In a fight, the jungle is his best friend and he soon learns to damn well know it. But the rest of the time, it works relentlessly for his downfall and he must work just as constantly to prevent it.

His feet must have meticulous care. No matter how dog-tired he may be after hiking under arms and with full pack from dawn to dusk, he must wash them and massage them, disinfect even the tiniest blisters, put adhesive tape on all tender spots and dust them with foot powder—a can of which has first priority in every jungle pack. Even one night's neglect of these chores will render him helpless in a day or two.

He must also bathe his body, with special attention to his armpits and crotch, for the fungus of dhobie's itch is everywhere. It can become firmly imbedded overnight. Foot powder is handy here, too, to help maintain the dry skin surface which is anathema to the dhobie.

The toilette only begins the stint of preparing to sleep. The jungleer must select his "bunk area" carefully—removed from ant hills (ants will attack a wounded man

and leave only a dry skeleton), fire-ant trees (where live tiny ants whose sting is like a red-hot needle and who swarm out at the slightest disturbance), and the dreaded black palm's poisonous long needles make nasty sores. If there are any trees large enough to support him, he makes a hammock of his shelter-half; otherwise he finds a suitable flat spot and pads it with leaves and grass before stretching the canvas over it. Before pitching his mosquito bar over this, he must inspect the netting carefully and mend even the smallest holes with adhesive tape.

Then he must clean his rifle, machete and pistol, his ammunition and clips. The jungle will corrode any metal in a day or two of exposure; not just the bore, but every part must get a cleaning and a new coat of oil.

Consider the load our jungleer packs: quinine pills (thirty or more for ten days), salt tablets (enough to allow three or four a day), iodine, adhesive tape, first-aid bandage; rations at about two pounds per day; mosquito bar and shelter half; pistol and accessories; rifle and accessories; two canteens of water with chlorine or halazone tablets to purify it (five pounds); matches in a waterproof container; a change of underwear and socks; miscellaneous pocket articles, including a knife; cigarettes for the time he will be out. That's the minimum, and it will come close to sixty pounds, bone dry. As the day wears on, he will drench it all with sweat, running up the weight. The sun will help keep dry, but inevitable rains and fording streams won't.

There's no place to get anything (except fruits occasionally) so he must carry it all from the first or do without. If he lets his pill bottles get broken, and his sweat dissolves his quinine and salt tablets, then "he's a-hurtin'." There's not a moment of the day when he can relax; he must be on guard against one thing or another as long as he's moving, and the one thing that all jungleers do all the time is move.

But when he has hardened himself to all these things, he is still a long way from being a finished jungle fighter. What he has learned so far is only how to be a jungle liver. When the routine is second nature to him, he is ready to start adding more tribulations—the rigors of combat in a region where he wasn't even meant to walk or breathe.

Jungle Fighting

Jungle fighting can be learned only in the jungle. Not under actual combat conditions, mind you. It's too late then. Our jungleer must spend months adjusting himself to an utterly strange routine of day-to-day living while he learns the tricks of defeating the enemy.

When his face is so brown that a full day's exposure to the brassy sun causes no soreness; when he can run a mile under full pack in the noon sun in seven minutes without upsetting his stomach; when he can hike sixty miles in two days with all equipment and still have the energy to hit the ground, fire, and run to cover; when he can swim fifty yards in clothing and shoes, piloting his equipment alongside on a flat piece of wood; when he can swing a machete to cut trail all day long without getting blisters or an exhausted arm—then he is by way of being good jungle-fighter material.

While developing these qualities, he meantime learns the fine points of jungle tactics—guerrilla fighting at its sharpest. Surprise is the only goal, and to this end he avoids any unnecessary contact with natives. The jungle telegraph carries the news with unbelievable speed. He always sleeps far from any native village for this reason and for the equally good reason of protecting his health; an anopheles mosquito must bite a malarial person before she becomes a carrier, and her range of flight is only a few hundred yards.

He is lectured on the tactics of the renowned Mexican raider, General Emiliano Zapata, whose standing orders were: "Never engage the enemy except from cover. Ambush him, flank him, tease him, lure him into pursuit, exhaust him, cut back on him when he is exhausted, fade away. Do nothing that you're supposed to do; do everything that no one would dream that you'd do. Keep cover, shoot straight, and never let up."

He soon realizes that the "shoot straight" admonition is important out of proportion to its wordage. All soldiers must shoot straight; everybody knows that. But in the jungle it's not just a hackneyed phrase. The jungleer quickly sees that the enemy has plenty of jungle to fade into—as much as he has. If his first volley does no damage, he won't have any target for his second one. The old factor of surprise again.

He learns that many good jungle fighters who don't seem to care a great deal for classics of American literature in general still devote a good part of their leisure time in

Heating and eating field ration "C" is a part of learning how to live in the jungle

In training for jungle warfare, emphasis is placed on stream crossings for here the enemy in ambush can cause great havoc. (Right center) A machine gun in the brush, looking down some trail, is a nice ambush trick. (Lower right) When the jungleer can swing a machete to cut trail all day, he's then of jungle-fighter material.

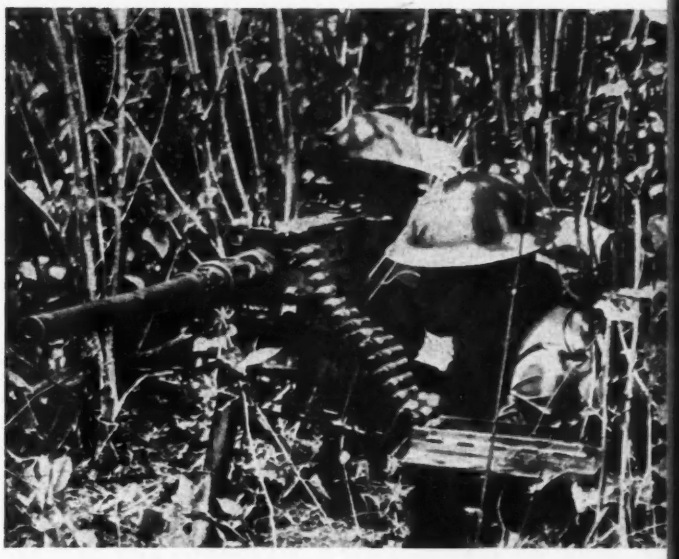
barracks reading the novels of James Fenimore Cooper. The principles of Indian fighting which he describes are part and parcel of the true ultimate doctrine of modern jungle fighting.

Our jungleer must learn to take several leaves from his compatriot, the North American aborigine. He finds himself making a more and more conscious effort to walk with feet in line, catlike, with a flowing roll that keeps his weight moving like a hoop on the ground, minus the bouncy, thrusting swagger he first learned while marching on the parade ground to a counted cadence or a drumbeat. As he walks, he studies the trail before him and by experiments and experience learns to place his feet where he will leave the least trace and make the least sound. Often a new trick occurs to him, like making necessary noises just when a giant iguana crashes through the brush, so that his own noise will go unnoticed.

He learns to spot quickly any disturbance of foliage which might indicate the recent presence of a man, for his enemy is adept at jungle fighting, too. With each new trick that he learns, he figures out a way to avoid letting that same trick be pulled on him. He experiments with various types of foliage until he can quickly snatch a small branch, tuck it into the netting on his helmet, let it drop across his face so that the outline is broken and blended with the green of his clothing, the green of his helmet, and the green of his background, yet without impairing his vision.

Ambush, he finds, is the greatest stunt of all. When the jungleers learn that the enemy is traveling along a certain trail, they can prepare a warm reception in a very few minutes. They space themselves at ten to fifteen yards between each man along a section of the trail, then move off a few yards from the trail into concealment and wait.

Every time, in such a maneuver, they move all to the right or all to the left of the trail. The added value of cross-fire on the trail is not worth enough to justify shooting at each other. They understand beforehand that no one will fire until the leader does and that he



will wait until the densest part of the column is abreast of them to get the greatest number.

Then the ambushers fade and reassemble at a pre-announced point by individual routes. Enemy flanking parties will beat the brush for hours and wonder where in hell those guys went.

Refinements of the ambush (and other tactics), he discovers, are possible with handgrenades. One trick is to anchor a grenade under a root on the trail, tie a string to the pin, lead the string into the brush under a scattering of innocent-looking leaves and pull it from cover when the enemy column is moving over the grenade. Several grenades, spaced out on the trail and connected to a master cord, may enable one man to rip up a long column. Other variations include lashing the grenade to the limb of an overhanging tree so that its bursting radius is more than doubled, and rigging up simple automatic pin-pullers of concealed string which operate when a log is stepped on or a branch is pushed aside.

Camouflage possibilities are endless. The Japs have been known to cover their faces and hands with green paint, but the effect is no better than that of smeared mud. Our jungleer learns to keep foliage in the netting over his helmet at all times, for he never knows when it might come in handy and he also learns that he must renew his foliage often, perhaps several times in one day if it is from a quick-fading type of plant, to foil the experienced enemy jungleer who can spot even slightly wilted foliage against a background of healthy green at a great distance.

He blues every exposed metal surface in all his equipment and sometimes streaks large areas with mud. His hands stay dirty anyway, but he rubs more dirt on them intentionally, for he finds that bare, clean human skin has something about it that shines out from camouflage even to the eye of the novice jungleer. He sees first-hand that a rifleman, properly camouflaged in every detail, can sit or lie completely exposed only a few yards from a passing column and never be noticed—as long as he remembers not to move or make a sound. With smokeless powder, he can even fire a round from a sitting position, wait a while motionless, and fire again without being spotted.

When an enemy detachment is crossing a stream, he finds, his patrol has a golden opportunity. They wait until the enemy force is about half-and-half on each bank, when the unwary always seem to bunch up to wait for those who are negotiating the crossing. Fire from concealed riflemen, opened simultaneously on both groups, gets a high percentage of casualties, scatters the rest so that they cannot reorganize without one group or the other crossing the stream. This leaves several helpless men in the water to be picked off at leisure after the other survivors have scrambled to concealment.

A machine gun in the brush, looking down the trail as it nears the crest of a hill, is another nice trick. Those who survive the first few bursts of fire hit the brush on both sides of the trail where riflemen are waiting to take them with pistols at point-blank range or hack them up with machetes. The machine-gun crew quickly dismounts the gun and evacuates, and the riflemen fade before the enemy's main body comes up.

When the order of the day calls for the capture of prisoners for questioning by military intelligence officers he practices the "boa trick," where he and a comrade drop suddenly onto the trail at each end of the column formed by an isolated patrol.

He listens to lectures based on intelligence reports of the combat experience of the Marines in the Solomons, and General Stilwell's men in Burma. And in this way he hears of new tricks, new adaptations of weapons and tactics, which are not yet released for public distribution.

Before long he is looking on the jungle as home—a place where the going is tough, but where great possibilities are open to the man who will make the necessary sacrifices to condition himself and take the trouble to learn the lore. Then he is ready to take a swing at the Japanazis, on their own chosen stomping-ground for a battlefield, no holds barred, best jungleer take all.

"A Soldier Trusts His Rifle"

From a message delivered by the Under Secretary of War Robert Porter Patterson to Winchester employees and reprinted by permission of *Winchester Life*.

TO A SOLDIER, his rifle is his pride. Our national tradition of minutemen and pioneers who won a country by their marksmanship is held high by Army men now fighting to preserve the freedom won with powder and ball.

The soldier also trusts his rifle, for in the last desperate moment it may be all that stands between him and death. I had that experience myself in 1918, when I was on a patrol within the German lines and my Enfield rifle saved my life.

To be proud of his rifle, to trust it with his life, the soldier must know that the weapon was made by men and women who take pride in their workmanship, who can be trusted to produce the best rifle possible.

Large numbers of American fighting men today are equipped with U. S. Army M-1, Garand, rifles which you make. Hundreds of thousands more will need those semi-automatics before the Nazis and the Japs are defeated.

Today, the Garand rifle is winning fame for itself on the firing line. The best army rifle in the world, it has well merited the high praise bestowed on it by the Army.

The performance of those rifles, the pride they evoke in our fighting men speak highly for your workmanship.

The Army asks only that you continue to put your best workmanship into those Garand rifles. Then our fighting men will use them with devastating effect on our enemies.

Invasion

On November 23, 1942, the German-controlled radio at Paris announced that the American Commander in North Africa had decreed that all civilians must surrender their firearms within twenty-four hours or be liable to the death penalty.

Whether or not such an order was actually issued we do not know, but it might logically be expected. Every invader in history has tried to confiscate all arms possessed by citizens of the invaded locality. There is nothing the invader fears more than a patriotic citizen with a reliable weapon and the courage to use it! This is equally true of military invasions of territory and of political invasions of the people's long established rights.

It has been often said that "Big Tim" Sullivan pushed through New York's original "Sullivan Law" because his political domination was being threatened by rival "ward workers" who were growing too aggressive around the polling places. The gun registration law made possible the *legal* arming of Sullivan's friends and the disarming of his opponents. Mussolini and Hitler used precisely the same tactics to establish their political control of Italy and Germany. The idea of the political conqueror is thus the same as that of the military conqueror—to be secure in your conquest, disarm those who may disagree with you!

Those who propose firearms registration admit it will not keep guns out of the hands of criminals. "But," they say, "if we catch a man with an unregistered gun we will know he is a criminal." They intimate that every *reputable* citizen will be permitted to keep his guns if he will only register them with the police. But well documented experience with the *working* of these laws tells a different story. The criminal keeps his gun. The honest citizen loses his gun.

Unfortunately, it is the unusual policeman who views himself as an employee of the citizenry. Instead, he views his job as that of a shepherd watching over a flock—half sheep and half wolves in sheep's clothing. He believes that his job calls for eternal suspicion and for the continual ordering about of his flock, which he views as mostly too dumb to protect itself. Of course, once in a while, "protection" also connotes protecting the policeman's job by complying with the wishes of the dominant political machine. Here the invasion of private rights enters the firearms registration picture.

The citizen has no more sacred right or duty than the protection of his home and his freeman's ballot against invasion by internal and external enemies. There is no moral law, no common law, that says he must or should *entirely* delegate this right and duty to mercenaries. True, the citizen may employ a professional police force as primary protection against internal attack and a professional military force as initial protection against external aggression—but the employment of such professionals neither relieves the citizen of the duty of personally defending his family, his property and his liberty nor endows the mercenaries with the right to deprive the citizen of the arms and training required for his defense.

The American people need to get firmly into their minds the fact that registration by political authorities of the citizens' arms is an infringement of a fundamental law of freedom—the law of self-preservation—which is the God-given privilege of free men, not merely a legal privilege which the framers of the Constitution endeavored to convey. We need to clearly understand that registration, with the resultant possibility of confiscation of privately owned arms, is a prime essential to successful invasion of our democratic rights; just as it is to the successful invasion of our native soil.

It is meaningless to say that no one has such a result in mind when they propose registration of firearms. We are not concerned with present intentions. We are concerned with permanent law. We face the facts of history. The registration of privately owned arms has always been a prerequisite to conquest by foreign or domestic dictators. Whether the dictator's intentions are benign or oppressive is beside the point. Freedom shackled soon starves.—C. B. L.

"It Ain't Necessarily So,—"

By E. BADEN POWELL

Here's a Real Thought-Provoker—Left Wide Open for Argument by the Author's Cagey Four-Word Attack

DURING WORLD WAR I, Vernon was one of those big bore addicts, regardless of the game. He proclaimed the powers of his .405 Winchester to the exclusion of all others on everything from coyotes to wild horses. He castigated any gun smaller than his .45 Colt revolver for anything from jackrabbits to man. But when he really waxed eloquent, it was about his open bored 10 gauge Winchester Repeating Shotgun, which he used on everything from quail to sage grouse.

Mellie, on the other hand, was an exponent of the small bore. With his .250 Savage, Mellie had claimed kills on jackrabbits and coyotes at such distances as to deserve the skepticism of anyone not a witness to the act, and a destructive effect that was greater than any gun he had used. His new, light .32-20 Colt Police Positive Special had produced, he claimed, better scores for him than any other pistol on the market and, to top the list, he claimed that he not only bagged more quail with less shells with his new full choke 20 gauge Smith double than any gun he had ever tried, but that with small shot it was a waterfowl gun equal to the best.

Now it so happened that I lived on the only other ranch in that southern thirty-mile stretch of Buena Vista Valley. The cattle belonging to all three ranches roamed together over the great Humboldt and Cinnabar Mountains to the east and west of us. These ranges teemed with mountain quail, sage hens, deer, varmints and wild horses. Having gone to school with Vernon and Mellie and sharing the cattle ranges with them, I wanted to be friends with both. However, to add to the general confusion, I was neither a big bore nor a small bore crank, but rather had found my .30-40 Krag with proper handloads reliable for everything from jacks to horses, my .38 Colt Special target revolver a most accurate all around sidearm, and my 12 gauge modified choke Marlin Model 28 hammerless pump, with proper loads, ample for quail, ducks and sage hen.

Vernon was a shotgun fan who believed that the gun which demonstrates an evenly spaced pattern on a paper target will kill more birds than a shotgun which throws uneven patterns, with larger spaces between some of the shot clusters, but I said IT AIN'T NECESSARILY SO,—because scatterguns are mostly used in shooting at moving objects and all of the shot doesn't get there at the same time.

For example, let's consider a typical 12 gauge duck load consisting of an ounce and a quarter of No. 6 shot, fifty yards away, fired from a full choke gun. The column of shot is about 4 feet in diameter and about 12 feet in length, which means that about 280 pellets are scattered through about 140 cubic feet of air space travelling at a speed of somewhat less than 1,000 feet per second. Now suppose the shooter had aimed well enough so the pellets in the first part of the column got to the same place, at about the same time that a large fast duck crossing at, say, 100 feet per second (68 mph) got there. The shot would be travelling about ten times as fast as the duck and, while the duck moved forward across the shot column one foot, the shot column would have moved forward about ten feet.

It can readily be seen that a cluster of shot would as likely intercept the duck, with as many or more pellets, from a shotgun that had a tendency to bunch its shot, as from one that distributed a uniform pattern throughout its column.

Of course, stationary targets, or ones moving straight away, or exactly toward the muzzle of the gun, might be more likely to escape through a hole in patchy patterns without being struck, such as straight-away targets at skeet, but in all cases where angles are involved, the results are likely to be quite different. The moral regarding this: If your gun doesn't pattern on a stationary paper target as well as your neighbor's, don't be discouraged and trade it off. The cold fact is that the writer has found that some of the poorest patterning shotguns he ever tested were the old reliable meat-getters

of the highest-scoring game bird shooters of the times.

Vernon also was a scattergun enthusiast who argued that the shorter the shot column during its flight, and the closer the pellets together, the greater the number of pellets that are likely to strike a moving target. But I said IT AIN'T NECESSARILY SO, —because the shot column at effective shotgun ranges is travelling at ten to twenty times the speed of the target usually shot at, and if the shot is strung out in a column twice as long, greater error can be made in lead and still have the target fly into the pattern. Even where the lead is such that the target flies into the forward part of the shot column, the longer it takes for the rest of the shot column to catch up, the greater the distance across the shot column the target will travel, and the greater the number of pellets it is likely to intercept. Likewise, the faster a target is moving, the greater the distance it can pass across or through a shot column, giving the remaining shot column a chance to catch up to it. It is all a question of the relative volume of space displaced by the moving target with respect to that of the shot column, while the two are intercepting each other.

Mellie was one to assert that the higher the speed of the shot when it reaches the target, the more deadly the killing effect, but I said IT AIN'T NECESSARILY SO,— because the greater speed of the shot relative to the speed of the target allows the shot column to pass by before the target has intercepted so many pellets, and explains the reason why large, fast-flying birds are often killed stone dead with small shot that has relatively low remaining velocity at distances at which it is known that only about one pellet exists per unit of space the size of the bird's body, yet the bird, moving across the long column of small shot, travelling at a closer ratio of speed with respect to the shot, intercepts several pellets that effect a clean kill. The moral to this is that many a chagrined hunter who so cunningly stalks a sitting bird for a sure pot shot at medium range, only makes the feathers fly, and watches the feathers fly away with the meat because a thin pattern lacks the chance to strike a still target with as many pellets as a moving target.

Mellie also was one of those smoothbore artists who claimed that the tighter the choke of the gun, the greater the effective range, due to greater density of shot in the column, but I said IT AIN'T NECESSARILY SO,— because, while the tighter choke usually results in a pattern smaller in diameter, it is also true that the greater the choke, the longer the shot column and the greater the number of deformed pellets caused from passing through the choke. These flat-sided pellets lose velocity more rapidly because of less weight and the retarding vacuum set up while passing through the air, the same as the tail drag on a flat based bullet. And while it is true that most full choke guns actually are effective at greater ranges than lesser choke guns, it is sometimes due to the longer shot column giving a target a chance to fly through it farther and intercept more pellets, rather than that there are always more pellets per cubic foot of space occupied by the respective shot columns.

Vernon would opine that it requires closer holding to connect with a bird when using a full choke gun, compared to an open bored gun. But I said IT AIN'T NECESSARILY SO,—because the fact remains that if a full choke shot column at 30 yards occupies a space of 2 feet in diameter by 7 feet long, and a quarter choke shot column at the same distance occupies a space of 3 feet in diameter by 5 feet long, and a bird crossing at right angles to the flight of shot at one-tenth the speed of either shot charge, and the lead has been misjudged so that the bird does not arrive until the short shot column has passed, it could still enter the last 2 feet of the longer choke bore column sufficiently far to intercept several pellets. The moral in this is "don't think because you shoot a more open bored gun you can be more sloppy in your holding than with a full choke, and still kill as many crossing birds under all shooting conditions."

Mellie was one of those shotgun users who advocate that high velocity shells will kill birds at distances directly proportionate to the increase in muzzle velocity, but I said IT AIN'T NECESSARILY SO. While it is true that spherical projectiles have the greatest area of cross section for a given weight of any practical shaped projectile, and therefore destroy more animal tissue (a type of "fluid") during penetration than any other shape projectile, yet because of this characteristic, spherical projectiles pass through the air (also a type of "fluid") with the greatest resistance of any practical shaped projectile of a similar metal. Also, it is true that the resistance of air to an object passing through it is not directly proportionate to the speed of that object, but at certain speeds is several times greater than others.

The speed of sound through air, depending upon temperature and barometric pressure, is around 1100 f.s., and when this speed is approached by an object passing through the air, a sound wave is generated which requires additional energy to produce, and the resistance of the air increases from the 3rd power of the velocity below

970 f.s. to the 5th power of the velocity, until 1230 f.s. is attained, after which it again drops to the 3rd power of the velocity. A load of No. 6 to No. 9 shot, fired from a gun at, say, 1500 f.s., instead of at 1300 f.s., depending upon the size of the shot, at a distance of 50 yards would be travelling at a speed of only 50 to 100 f.s. faster; and while the initial speed was increased by 15 percent, yet at 40 to 50 yards distance, due to relatively greater loss of velocity, widening of the pattern at greater distance, and the likelihood of more deformed pellets from the higher powder pressure used to start the shot faster, would actually increase the range of similar killing power by only about 5 percent or 2½ yards.

The moral of this is that standard skeet and trap loads will kill any game birds as far away and as consistently, if not more so, than higher speed loads in those sizes.

The evenest, densest and most effective patterns are obtained with various sizes of chilled shot when fired from guns of any gauge or choke at muzzle velocities of about 1225 f.s. for No. 9 shot and at 25 f.s. increase in velocity for every size larger shot up to 1500 f.s. for BB's.

Mellie also echoed the sentiment of those shotgun experts who foster the use of *small bore,* light weight shotguns as being more effective for the average shooter than standard weight 12 gauge guns, due to asserted faster handling and lesser recoil, but I said IT AIN'T NECESSARILY SO. It is undeniably true that a load of an ounce and one-eighth of shot, fired from a 12 bore shotgun, is a more effective load at any distance than that same weight of shot fired from any smaller bore, provided the velocities, shot sizes and choke boring are identical, because the larger the bore, the shorter the column passing through the barrel, the lesser the pellets in contact with the bore to become deformed, the lesser the pressure to obtain the same velocities, the lesser the shot friction in contact with the barrel, and the more perfect pellets in the shot column after leaving the muzzle; and the heavier shot charges possible from a 12 or larger bore, insure greater relative effectiveness, compared to that of the lesser shot charges of 20 gauge and smaller guns.

It follows that if one is able to fire the same shot charge, or a larger shot charge, from a larger bore gun of the same weight, that he is using a more effective weapon. Now the fact is, that upon going into any large gun store in America and selecting, at random, the most popular pump guns, automatics, and doubles, available at prices under $100.00, that one will find the amazing fact that these guns, similarly equipped, vary less than one-half pound in weight between the 16, 20, and 28 gauges. While it is true that there are available one or two feather-weight models of these guns in the small bores, including the .410 gauge Winchester, at weights of about six and one-quarter pounds, it is *also* a fact that 12 gauge guns are available in standard makes, in this same price range, that weigh only about a half pound more, and special lightweight twelves that weigh under six pounds. I think this completely blows up the argument of the necessity of buying a small bore gun to obtain *minimum weight.*

Now let us consider the situation concerning recoil. Yes, it is true that the larger the bore, the greater the area of gases coming into contact with the atmosphere, and the greater the *apparent* recoil from muzzle blast, but this is far from the whole story concerning recoil. Recoil is produced by two causes and may be reduced by the application of several principles. In the first place, little more than half of the recoil generated in a shotgun comes from the powder moving the relatively lighter mass of shot in the one direction, and the heavier mass of the gun in the opposite direction. The rest of the recoil is generated by the additional backward thrust given the gun when the gases, confined under high pressure behind the shot charge, come into contact with the air, and varies somewhat at different barometric pressures and temperatures. Now these two forces, acting together, produce *total recoil.*

With the ratio of weight of gun to the weight of shot, at about 100 to 1 in one instance and 50 to 1 in another instance, using the same load, the total recoil produced would be the same in either gun, but the free or *apparent* recoil to the shooter would be a very different matter, and would produce different effects on different shooters, depending upon their susceptibility. This susceptibility might be more psychic than physical, inasmuch as oftentimes one shooter, weighing half as much as another, is perfectly comfortable absorbing a greater amount of free recoil.

The approach to reducing recoil to the degree of comfort required by a shooter should not, however, be by, at first, dropping to a smaller bore, or light load, but rather by determining the heaviest gun that particular individual is capable of handling to the highest efficiency for his purpose. By this is meant that not only do light guns usually pattern more erratically, and less accurately, but also many individuals require a heavier weight to balance their build, and to coordinate their swing, and to "feel" correctly in their particular hands for the best consistent pointing skill.

Stock dimensions, barrel length and weight distribution are vital and essential factors in determining this maximum weight, and all three will vary as between pump guns with their long receivers, and doubles, or over and unders, with their shorter breeching mechanisms.

Once the maximum gun weight has been established, the second attack should be made through the use of a compensator, if a single barrel gun is selected. This device will reduce apparent recoil from 30 to 45 percent with the various loads. The next step to recoil reduction should be the adoption of lighter loads for the larger bore gun, or in other words, a 16 gauge load for the 12 gauge, which 12 gauge can be bought in 16 gauge weight, or the 20 gauge load for the 16 gauge, either of which are available in standard stock loads, rather than go to a *smaller* bore of the *same* weight to shoot the *same* load.

The next step should be to buy a longer and straighter stock, the nearer to no pitch the better, and the use of a good rubber recoil pad to further reduce recoil by several percent. All these things together will reduce the apparent recoil of a 6¾ pound 12 or 16 gauge pump gun, using light loads, to a degree that the most recoil conscious shooter can achieve the highest skill possible for that shooter with any gun.

Perhaps it should be pointed out more clearly that it is not necessary to eliminate the total free recoil, but only that portion of the *apparent* recoil which the shooter is affected by, and which in the very heaviest loads, in the lightest shotguns it is safe to use them in, is seldom greater than one-third of the total recoil.

(Continued on page 30)

THE ARMY RELEASES MORE DOPE
ON ITS NEW "BABY GARAND,"—

The M-1 LIGHT CARBINE

By
HARRY F. LYNCH*

UNTIL RECENTLY, MORE THAN HALF of the officers and soldiers of the American Army were armed with pistols. Primarily a defensive arm, it was almost useless as an offensive weapon at a distance. Furthermore, soldiers carrying sidearms only, were useless to the offense when their mission had been completed. Included in this category are ammunition carriers, artillery personnel, motorcyclists and many others.

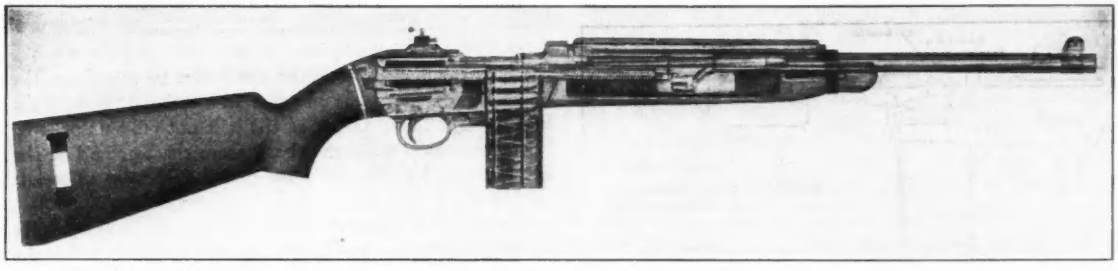
The increase in the number of men assigned to the ammunition carrying detail alone, has been in direct ratio to the tremendous increase in firepower through the wholesale employment of automatic and semi-automatic rifles, machine guns, 60 and 81mm. mortars and various types of artillery. While automotive vehicles now largely take the place of foot soldiers as ammunition carriers, the fact that a division today is supposed to use up 600 tons of ammunition in twenty-four hours as against only 39 tons in World War I, indicates the magnitude of this detail. Replacing the pistol with the Garand, Springfield or submachine gun was no solution. Therefore, the Ordnance Department of the U. S. Army demanded a new military weapon weighing not over five pounds, with an effective range up to 300 yards with which to arm troops performing missions for both defense and offense. Full automatic firepower was sacrificed in favor of the semi-automatic with its better control. The Carbine, caliber .30 M1 was the answer. By replacing the pistol with the Carbine, the offensive firepower of the Infantry regiment will be increased nearly one third.

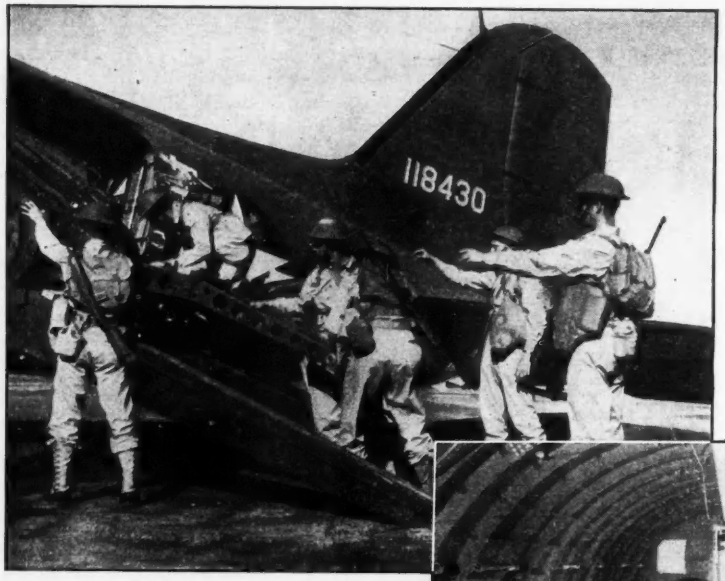
110 gr. bullet and cartridge of Carbine (left) compared with the regular 150 grain, 30-'06

America's three principal Army rifles are the Springfield, the Garand and the Carbine. The latter has but sixty-two parts, which is fewer than either of the other two. As every rifleman knows, semi-automatic weapons are of two types: (1) gas operated, and (2) recoil operated, the latter in straight blowback (unlocked breech) and delayed blowbacks (locked breech.) The Garand and Carbine are both of the gas-operated type.

The weight of the Carbine is approximately five pounds as compared to about nine pounds for the Garand. The Carbine is magazine-fed with fifteen rounds, while the larger weapon is clip-fed with eight rounds. The Carbine

*Senior Ordnance Engineer, Rifle Section, Small Arms Branch, Industrial Division.



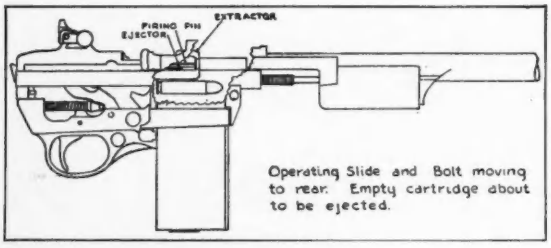


Handy weapon for airborne infantry is the M-1 Carbine, carried on the backs of these troops loading a 75 mm. field piece. (Right) With Jeep and big gun aboard, troops await signal for attack.

is 35½ inches long and the Garand 43½ inches in length. While the range of the Carbine is in the neighborhood of 2000 yards, the L-type rear sight, consisting of two arms at right angles, each pierced with an aperture, is set for only 100 and 300 yards, as this weapon is designed for close work. The front sight is the blade type, protected by wings.

The jacketed bullet of the Carbine weights 110 grains and its muzzle velocity is 2000 feet per second. The cartridge is only $1\frac{1}{16}$ inches long and the case is not necked, but it tapers slightly for its entire length. When fired this ammunition develops a maximum pressure of 41,000 pounds per square inch according to the powder used.

The bolt, the action and the functioning of the Carbine and Garand rifle are quite similar, a small portion of the powder gases being taken off through a port in the barrel and used in a separate cylinder to drive an operating slide. The movement of this slide unlocks the bolt and forces it back, thereby ejecting the empty cartridge case and compressing a spring by which it is returned to the first position. In the meantime, the magazine spring forces a fresh round of ammunition up into the boltway and when the bolt comes forward it pushes the round into the chamber. At the same time the piece is cocked and ready to be fired.

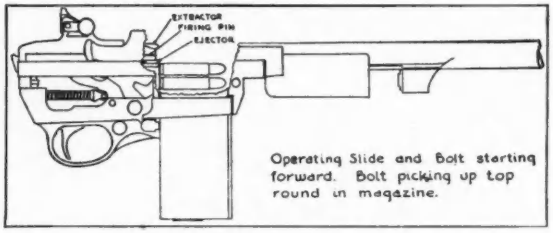


Operating Slide and Bolt moving to rear. Empty cartridge about to be ejected.

Lugs forged on the bolt lay behind recesses in the receiver to lock the bolt in place. A few degrees rotation is enough to free these lugs and unlock the bolt. The movement is accomplished both ways by a camway cut in the operating slide, in which one of these lugs rides.

Trigger, sear and hammer, rotating about their respective pins are so interlocked as to hold back the hammer when the piece is cocked. Pressure on the trigger releases the hammer which is driven forward by spring pressure against the firing pin, through which its blow is transmitted to the primer of the cartridge. As a safety precaution, this action cannot take place unless the tang of the firing pin is seated in the receiver. This seating cannot be accomplished unless the bolt is sufficiently rotated into its locked position.

The operating slide is designed for a short rearward movement before the cam recess engages the operating lug on the bolt. This delay between firing and unlocking



Operating Slide and Bolt starting forward. Bolt picking up top round in magazine.

the bolt is sufficient to allow the bullet to pass from the muzzle and relieve the pressure in the barrel before the bolt opens. The rotation of the bolt not only unlocks it, but also cams the hammer back from the rear end of the firing pin and causes the point of the firing pin to recede within the bolt.

To explain the action of this gun a little more fully we might add that the bolt is pushed to the rear by the

operating slide, the empty cartridge case is withdrawn from the chamber by the extractor and is finally thrown clear and to the right front by the spring-actuated ejector. At the same time, the rear end of the bolt bears against the hammer and forces it back, thus compressing the hammer spring. The rearward movement of the operating slide is terminated when the rear end of its inertia block strikes against the forward end of the receiver and the bolt stops when it reaches the end of the bolt hole in the receiver. The boltway then being clear, a fresh round is forced up into line with the bolt by the magazine follower and spring. The operating slide having reached the end of its travel, reverses direction and the compressed operating slide spring drives it forward and the bolt pushes the cartridge into the chamber. At the same time, the rim of the cartridge case is engaged by the extractor, and the base of the cartridge forces the ejector into the bolt and compresses the ejector spring. Again the cam recess in the operating slide comes into play against the bolt operating lug, this time rotating the bolt clockwise into the locked position. The forward movement of the operating slide continues until the rear wall of its inertia block contacts the piston in the cylinder. The Carbine is then ready to be fired again; and the cycle can be repeated as fast as the trigger can be pulled until the magazine is empty.

GUNSMITHING KINKS

NEW COLT CYLINDER BOLT

JACOB LUOMA OF MARQUETTE, MICHIGAN, seems to have a knack of making difficult parts for guns, reloading equipment and other near necessities. In making a new cylinder bolt for his Colt revolver, his problem was to build one that would time the cylinder stop in order for the tail of the bolt lever to disengage from the lug on the rebound arm at exactly the right time, and also to engage this projection regularly.

The dependable job consisted of filing the right, flat side of the bolt lever very thin, starting well forward of the screw hole in the arm. On this filed side he soldered a piece of clock spring to extend to the rear and engage the rebound lever lug. In fact, it was purposely made longer than the original arm, the end of which normally slips off the front edge of the rebound lever. To insure proper timing, the pin holding the mainspring link to the hammer was replaced by using a round headed rivet. The purpose of the round head projecting to the right side is to shove the clock spring end of the bolt lever to the right, just at the proper time for the bolt to lock the cylinder. Luoma suggests slight filing of the right side of the frame might be necessary to provde sufficient space for the round head of the rivet to function without binding. Also keep it well oiled for smooth performance.

ENFIELD SPORTER

Another Luoma job requiring considerable painstaking work was to make a sporting stock for the M-1917 rifle. Apparently the military stock was completely revamped. First, the stock was cut into, lengthwise, using a thin saw, and cutting the tie-bolts with a hacksaw. Next a thin wedge-shaped piece of wood was placed between the two halves of the buttstock to make it 1¼ inches wide, and the whole thing glued together with Casein glue. Then the entire butt end was built up to include high comb and pistol grip. The finger grooves in the forearm were filled with walnut and the entire action and barrel inletted in the slightly narrower stock at the front end.

With the revamped bolt stop, bent back bolt handle and Springfield trigger guard substituting for the original guard, the whole job seems to be quite presentable. The work also included a large sharply-grooved buttplate with projecting lip over the heel of the stock, similar to the Winchester M-70 buttplate.

To complete the fore-end an unusual streamlined tip of metal was forged and bent from a piece of ⅛-inch automobile channel iron. The iron was hot forged and bent as the fitting continued to the finished stage. This fore-end tip is quite strong, providing secure anchorage for the upper sling swivel near the end of the stock. A nut soldered on to the inside of the tip makes it possible to have the swivel detachable. The tip is pin-fastened to the wood.

Even the ramp front sight was made to order and a slot milled in the receiver for a new adjustable rear sight along the lines of the old Winchester M-52 folding leaf, but shorter to allow clip loading with the sight lying flat.

SCOPE SUN SHADE

To prevent extremely bright light from shining directly on the objective lens of my Weaver scopes I make shades from Formica tubing. They are polished on the inside with emery cloth until they are a snug sliding fit on the scope tube. Conveniently removable, they serve their purpose quite well.—DOW MITCHELL.

TRIGGER STOP

A trigger stop is very desirable on many late model .22 caliber bolt-action rifles. On these rifles the trigger moves back so far that the long pull disturbs the aim. This fault with my .22 caliber rifle was corrected by a bolt through the trigger guard so the trigger only goes back about ¼ inch instead of the ¾ inch. This device has helped my score on both target and game more than fifty per cent.

The trigger stop is made as follows: drill a $\frac{9}{64}$-inch hole in the rear of the trigger guard. Use as small a bolt as possible, say a $\frac{5}{32}$ inch. It is best if it is of soft metal. Brass is ideal. Put this through the hole and tighten it up. Take a small file and file the bolt down until the trigger has just enough room to let off the sear.

The only disadvantage of this device is that it must be removed before one can remove the bolt, but I believe the advantage is enough to offset this.

While the trigger stop is by no means a new idea, I believe there are many young shooters that can make good use of it.—ROBERT N. OSBORNE.

MILITARY EXPLOSIVES

By

J. B. NEALEY

PART II—HIGH EXPLOSIVES

WHATEVER THE PURPOSE OF WAR, the side that can produce the greatest destruction in the right place, other things being equal, usually wins. In modern warfare, that destruction is best accomplished with grenades thrown by soldiers, shells fired by artillery, bombs dropped by airplanes and torpedoes loosed by both submarines and airplanes, all containing high explosives. The rifle and machine gun, however, are still supreme when the soldier is close enough to pick his shots.

Explosives are mechanical or chemical compounds deliberately concocted in such a way that the constituent parts are dissatisfied with each other's company and are constantly seeking a means to get rid of the other. With some explosives, a sharp blow is all the excuse that the molecules need to burst their family bonds. In other cases heat does the trick. In some cases an explosive wave transmitted from another explosive will set off the main charge. A light shock or frictional heat detonates the primer. The shock of this small detonation sets off the booster. The booster sets up an explosive wave which is all that is necessary to initiate the disintegration of the main explosive charge. This explosive wave operates in the same way that you can cause the strings of a grand piano to sound by standing in a distant part of the room and whistling or singing certain musical notes. The main charge which is set off by these explosive waves, on the other hand, is so insensitive that the detonation of the primer would not explode it.

High explosives, as used in the military sense, are divided into priming compounds or initiators, boosters, demolition charges and fragmentation charges. The principal high explosives, those standard in the U. S. Army today, are tetryl, formulas FA 70 and FA 90A, fulminate of mercury, lead azide, TNT, amatol and ammonium picrate. Nitroglycerin, absorbed in inert substances and called dynamite, as well as TNT, is used by the army for blasting and demolition work. In bulk usage TNT rates far ahead of the others except for some new amazingly destructive explosive which is still a carefully guarded military secret. Its explosive effect is appreciably greater than TNT.

As stated, an explosive is a chemically unstable compound which disintegrates at extremely high velocity. The speed with which the molecules fly apart determines the effect of the explosive. That is, it may have a more or less lifting, prying-apart action, or it may have a shattering effect, just as a slow, heavy bullet will knock down a steel plate without penetrating it, while a high velocity bullet will shatter the plate at the point of impact and blast a hole, perhaps, without knocking the plate down. The first requisite of a high explosive is to react or detonate as quickly as possible but the rate of detonation varies considerably among high explosives. For instance, TNT and nitroglycerin detonate at rates of approximately 4½ and 5½ miles per second, respectively, in the form customarily used.

The second requisite is that it be non-sensitive because there must not be the slightest chance of its bursting in

GRENADES, SHELLS, BOMBS, TORPEDOES—THE STORY OF HIGH POWERED DESTRUCTION

the gun when it receives the impact (setback) from the burning propellant which hurls it on its way. In a bomb it must be safe from direct hits of bullets from machine guns. Nitroglycerin is the most powerful explosive known, except for the secret explosive, but it is far too "touchy" as such for military use. On the other hand, TNT, ammonium picrate and amatol (a mixture of TNT and ammonium nitrate) are ideal. They are so insensitive that the ordinary fulminate of mercury primer will not set them off. They, therefore, require a detonator and a booster. The detonator is usually lead azide and the booster tetryl.

A combination armor-piercing and high-explosive shell when filled with ammonium picrate, the common explosive for armor-piercing shells, can be fired against armor plate more than a foot thick without exploding it. When military explosives are detonated the pressures they exert are so enormous that they cannot be measured directly, only estimated. For instance, it is estimated that nitrocellulose and smokeless powder, when detonated and not burned progressively, exert a pressure greater than 1,100,000 pounds per square inch. How much greater is not known.

In this connection it should be noted that explosives have degrees of insensitiveness due to variations in density. Also, for instance, it takes an initiator, a detonator and a booster to explode TNT that has been cast; that is, poured into the shells or bombs from the molten state and allowed to set. On the other hand, TNT, in crystalline form, detonates readily with a fulminate of mercury primer of one gram, and when compressed to a high density, two grams will do the job. Thus, we see that the artillery engineer and ballistics expert have a long list of physical characteristics from a few explosives to work with when designing new guns or weapons. This is most important in modern warfare and highlights the extreme care with which these explosives must be manufactured, for the least variation in power spells misses and misses can lose battles.

To explain some of these various explosives we will describe a high-explosive shell in which they are used, or better yet, the entire round including the propellant. For large size cannon separate loading is resorted to; that is, the shell is put in and the propellant charge, in bags, is loaded in behind it. A complete round is employed with the smaller sizes and this includes a cartridge case, into the end of which is crimped the shell. This makes for ease of handling and is necessary in rapid-fire guns like the antiaircraft group. The metal cartridge case is similar to that used in rifle ammunition and contains a primer and smokeless powder.

The shell is a hollow projectile containing a load of TNT or amatol. It is made of steel of suitable thickness so that upon detonation it will burst into many pieces, fragmentation. These pieces fly in all directions, as stated, and are very destructive. The time of detonation is controlled by a fuse which screws onto the end of the shell. It contains a primer, which may be of fulminate of mercury or some other primer mixture, a detonator of lead azide, and a booster of tetryl. Sometimes the booster is in a cup, shallow or elongated, as the case may be, and is screwed directly into the shell itself. Some shells are shipped separate from their fuses as a safety precaution for there is little likelihood of the former being exploded by rough handling in transportation.

Excavations to whatever depth you want. Count on the 100 pound bomb to blast a six foot hole in ordinary ground; larger demolition bombs using delay fuses for greater depth as shown in chart. (Left) A sample of a two ton bomb's excavating possibilities.

The mission of high explosive is twofold, (1) fragmentation as in shells and some types of bombs and (2) the blasting effect as in other types of bombs. The destructive effect of fragmentation is produced by the scattering of pieces of the steel shell or bomb case at high velocity. It is employed mostly against infantry, machine-gun nests and light material targets such as motor transports, etc.

INSPECTING THE TINY PRIMER CUPS FOR FAULTY ASSEMBLY AND FOR PROPER FILL. (Top) HERE'S HOW THEY LOOK THROUGH MAGNIFYING GLASS TO THE INSPECTOR.

fly in all directions at from 3,000 to 4,000 feet per second.

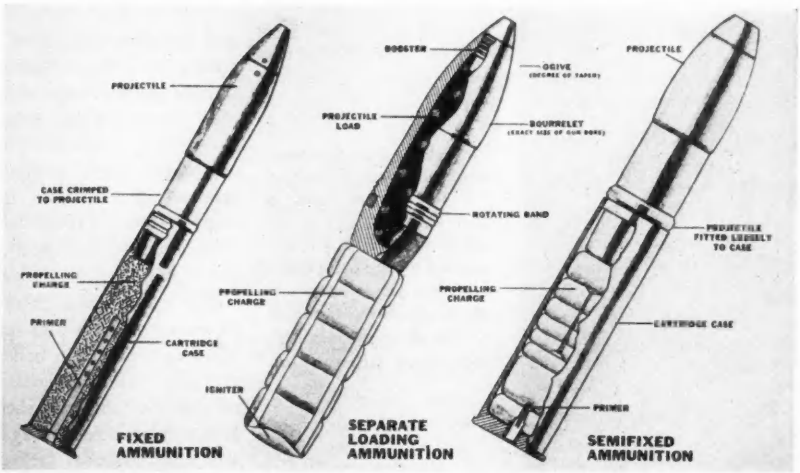
The gases formed expand rapidly and travel outwardly, in all directions, at a velocity that attains from 10,000 to 15,000 feet per second within a few feet. However, as the velocity increases the pressure decreases rapidly but it is the velocity and not the pressure that is most destructive. In other words, it is the destructive power of wind traveling at a speed of 7,000 miles per hour. Contrast this with the demolition effect of a typhoon or tornado traveling at 100 to 150 miles per hour and you have a small conception of what happens. The velocity of the gases, and therefore the blast effect, becomes nil at about 50 feet. However, the rapid expansion of the gas has created a partial vacuum within the gas mass. Therefore, two actions occur within the building, (1) pressure against the walls and roof tending to push them out, immediately followed (2) by a suction tending to pull them in as the air and spent gases rush back to fill the vacuum. If the building withstands the first, it is often so weakened as to succumb to the latter.

Fragmentation or demolition bombs are dropped by airplanes on ground targets, and on antiaircraft gun emplacements as well. Of course, the plane must keep above the effective range of the antiaircraft artillery it is bombing.

The blasting effect or demolition is obtained with thin-walled bombs, so made to increase the explosive charge they carry. The walls must be thick enough, however, to allow penetration of such targets as battleship decks, buildings, concrete shelters and the ground before exploding in order to obtain their greatest destruction and mining effect. As an illustration, take a 2,000 pound demolition bomb with a booster and delayed action fuse dropped on a building. The bomb penetrates the roof to explode inside. If the bomb is filled with TNT, the rate of detonation will be about 18,000 feet per second. It will take only about one three-thousandths of a second for the TNT to be changed into a dense gas at a pressure in excess of a million pounds per square inch. Naturally, the steel case will be broken into thousands of fragments which

Illustrative of how distance effects demolition, take a 600 pound bomb which was exploded 12 feet from a pillar of a reinforced cement bridge with little effect on it. Another bomb of the same size detonated 8 feet from the same pillar shattered it, causing the collapse of a span.

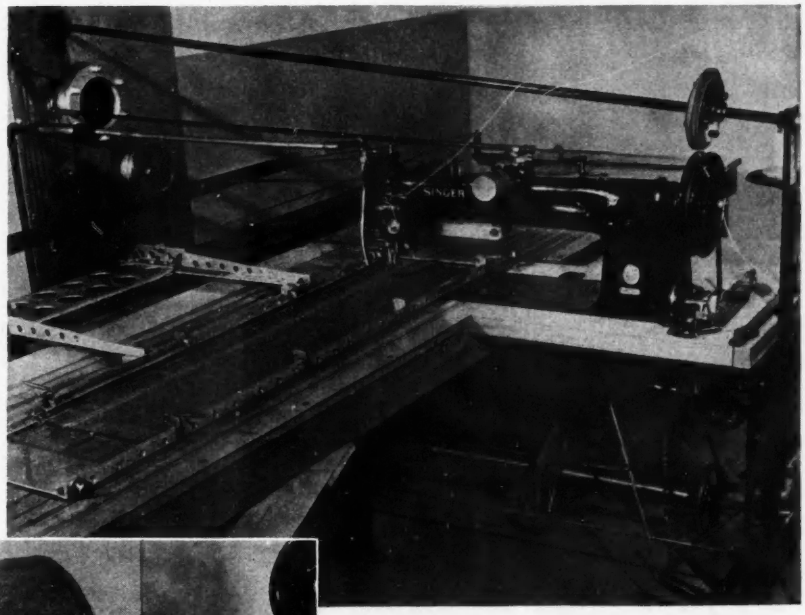
Huge plants have been erected by the Ordnance Department in which bombs and high-explosive shells are filled by pouring liquid TNT and amatol into them to harden. This gives a uniform density.



The propelling charge of trench mortar shells comes in sheets which are cut into sticks and these are attached to the outside of the shells between the fins with a cartridge igniter in the center. Variations in range are attained by removing some of these sticks. Sewing these sheets of gunpowder together is considered a hazardous job. Therefore, the sewing machine is kept in a room with thick concrete walls and is operated by remote control from the outside, the operator observing his work through a small window.

So-called "bag-loading" plants are immense Ordnance establishments where smokeless powder is packed in bags, the sizes varying with the caliber of cannon in which they are to be used as propellants. Here can be seen acres of sewing machines on which the silk, rayon or cotton bags are sewed. In making these powder bags, the material is spread out on long tables, marked for the size of the bag and then cut with an electric knife. Numbers are then printed on the cloth to designate what type charge is to be put in the bag. Innumerable small houses, set apart from each other, are used in the filling of these bags and attached primer envelopes, so as not to have a large amount of powder in any one place. Thousands of women are employed in each of these plants; many as inspectors, as the powder bags go through the most careful inspection in the various steps of manufacture.

(To Be Concluded Next Month)



SEWING SHEETS OF GUNPOWDER IS ONE OF THE HAZARDOUS JOBS OF PRODUCTION. THE SHEETS, CUT INTO STICKS AND ATTACHED TO OUTSIDE, ARE PROPELLING CHARGES FOR MORTAR SHELLS. THE SEWING MACHINE IS KEPT IN ROOM WITH THICK CONCRETE WALLS AND IS OPERATED BY REMOTE CONTROL FROM THE OUTSIDE. (Left) OPERATOR OBSERVES HIS WORK THROUGH A SMALL WINDOW.

Smokeless Powder from Wood Pulp

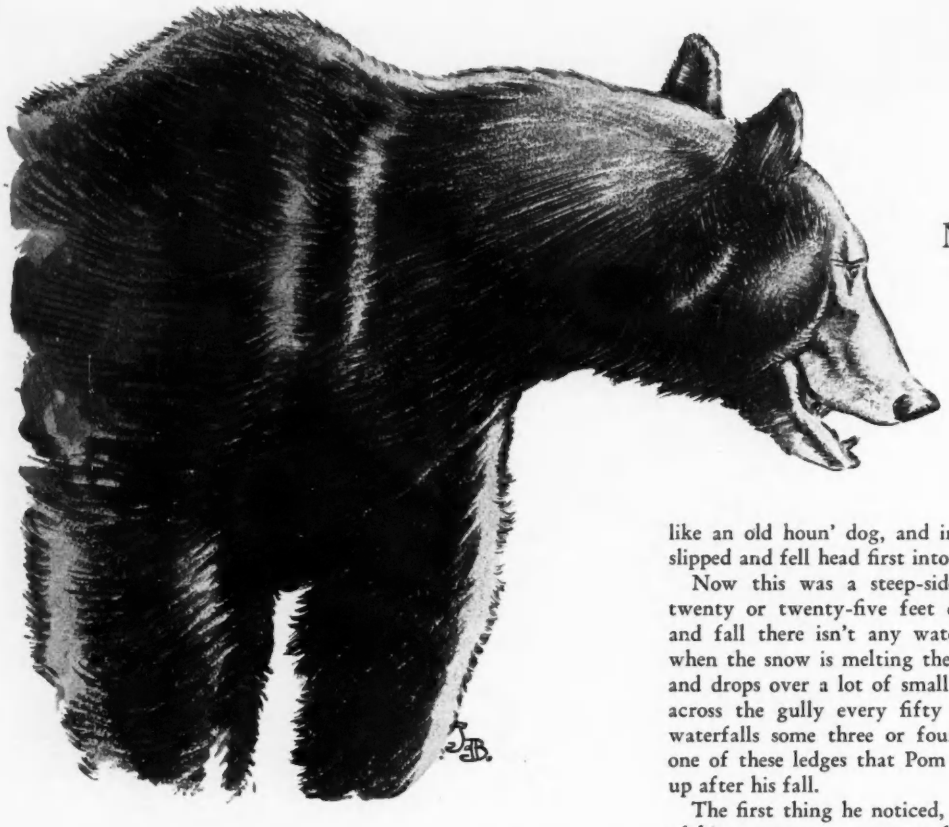
A recent news release from the Hercules Powder Company tells of the development of a new powder process whereby wood pulp can now be used in the manufacture of smokeless powder. This new process has increased powder production of American, Canadian, and Australian plants by about one quarter and has also freed Canada and Australia from dependence upon cotton.

Previous attempts to use wood pulp had resulted in powder of uncertain quality and the process was slow and expensive, as compared to processing of cotton.

When it became apparent that supplies of cotton would be entirely inadequate for the war program, a process was sought which could utilize the commercial grades of wood pulp such as those used in rayon manufacture, which were then being produced by existing wood pulp plants. For this purpose it was imperative also that the wood pulp should function in nitrocellulose plants designed for the manufacture of nitrocellulose from cotton. No alterations in the plant process would be then required and it would eliminate special plant construction.

With the cooperation of pulp and paper companies in developing a standard grade of wood pulp in a special size suitable for the experimental work carried on chiefly at the Parlin plant laboratory, the Hercules wood pulp development has now been made available to all United Nations explosives industries with the assurance that the wood pulp producers can meet all requirements.

The company estimates that the wood pulp development, based upon the difference in the cost of cotton and wood pulp, will lower the cost of manufacture of smokeless powder at United States ordnance plants about twenty million dollars for 1943 alone.



POM'S B

By

MILTON McQUEARY

MY FRIEND, "Pom" Ainsley, wanted a bear skin. Yessir! And he must have wanted it bad, too.

One time, after the snow began laying on the west slope of Gravel Mountain, Pom starts hunting for that bear.

He'd start out in the morning, after a fresh snow, and work up the slopes of the mountain until he struck a fresh track. Then he'd follow that track until it disappeared over on a south hillside where the sun had melted the snow or, as sometimes happened, Pom figured old Bruin was too far ahead to catch. So he'd start out another day. . . .

Well that sort of thing went on for the better part of three weeks, and Pom had about decided he was just out of luck. But one morning he tried hunting a new territory and stumbled across a whole bunch of tracks which Pom calculated had been made nearly a week before since they had about four inches of snow in them. But it seemed to him from the number of tracks around that the den must be pretty close, so he set out to find it.

Pom knew that if he could find the den, he wouldn't have much trouble getting a shot at the bear because it was getting around to that time of the year when those fellows were sticking pretty close to sleeping quarters.

Of course, it was no cinch doing anything with tracks as old as these because a fellow can't tell which way they're headed, but Pom would pick out a likely looking track, make a guess which way Bruin was going, and take out after him. He would follow a track a half mile or so and if it didn't seem to be getting anywhere he'd come back to the starting point and take up another one—and then another.

Well, to make a short story long, he was piddlin' around trying to unravel these old tracks, sniffing hither and yon like an old houn' dog, and in crossing a little gully, he slipped and fell head first into the deep snow in the gully.

Now this was a steep-sided, V-shaped gulch, about twenty or twenty-five feet deep. During the summer and fall there isn't any water in it, but in the spring when the snow is melting the water comes rushing along and drops over a lot of small sandstone ledges which lay across the gully every fifty yards or so, making little waterfalls some three or four feet high. It was under one of these ledges that Pom found himself when he sat up after his fall.

The first thing he noticed, after digging the snow out of his eyes, was a space, or hole, under the ledge beside him. This hole was about eighteen inches across and ran back under the ledge as far as he could see.

"Aha," says Pom to himself, "this is a likely place for a den." So he proceeds to examine it carefully. The hole was hidden by the snow piled up in front of it, but after Pom had scraped away enough snow he could see bear hairs clinging to the rock ledge. This showed a bear had been there, whether he had stayed or not.

Since there seemed to be no way of finding out if the cave was occupied except to crawl in and see, Pom decided to do just that.

He eased his head and shoulders into the hole—and then jerked himself back out a darn sight faster than he went in, for Pom had been greeted by a fierce snarl from the depths of the cave.

Well, that located Mr. Bear! The next thing to do was get a shot at him.

Pom climbed up on the sloping rock which was nothing else than the roof of old Bruin's den, and jumped up and down making more noise than enough trying to scare the guy out. But Bruin didn't scare worth a cent; so it looked like new strategy was in order.

Now at about this point in the proceedings, you or I would have gone home and gotten some of our friends and neighbors to help on the job. But not Pom! He got down on his hands and knees again and crawled into the den with his rifle ready for business.

Those were some jittery moments for Pom before his eyes became accustomed to the darkness of the cave, but when they did he could see the bear!

The floor of the cave sloped upward about fifteen feet from where Pom lay to the back of the cave and there,

S BEARSKIN

in a nest of pine needles and twigs, squatted Mr. Bear.

There was another pile of needles and dirt between Pom and the bear, but he could make out the general shape and could see quite plainly the head with its glowing eyes. The bear looked to be a fairly small one, so Pom became slightly less concerned about him. But the thought suddenly occurred that if this one in the den was small, then his mammy might turn up any minute outside on the doorstep and start chewing on Pom's unprotected posterior. Naturally, this was a disconcerting thought even to Pom and it kept him pretty busy, with one eye on the bear in the cave and the other eye peeled for enemies in the rear. For, needless to say, he would be in a bad fix indeed with a small bear in front, a large one behind and him unable to run, fight or climb a tree.

Well, after a reasonable interlude during which the imaginary big one didn't show up, Pom decided, after due consideration, to risk the exposed flank and take a shot at the one he had cornered.

He didn't want to shoot at the bear's head because this would ruin the skull for mounting. But in order to get a shot at any other vital spot it would be necessary to remove some of the junk which concealed part of the bear. So Pom backed out of the den again and hunted around in the timber until he found a small, slender pole. Then he crawled back in, hoping old Bruin had stayed where he left him, keeping his rifle ready in case he hadn't. Everything was in order, so he proceeded to scrape away, with the pole, enough of the pile to enable him to get a shot at Bruin through the heart.

After all that he tried aiming at the bear, but now found that it was too dark in the cave to see his sights. This, he discovered, is a problem he could overcome by removing a few of the rocks around the entrance and thus admit light enough to shoot by. So Pom removed the rocks.

As the bear didn't seem to be much disturbed by this carrying on, apparently being somewhat groggy, Pom figured he would make his preparations carefully, since he didn't want a wounded bear on his hands.

Well, at last everything was ready for the big try. Pom had rubbed the sights on his gun to a bright polish and was able to see them well enough to place a shot wherever he wanted.

He was just about to shoot when suddenly he remembered that the muzzle blast inside that cave would probably play heck with his eardrums if he left his ears unplugged. So, having nothing better, he cut out a bit of the lining from one of his gloves and stuffed it in his ears.

Then he took aim . . . carefully and cautiously . . . and fired!

The muzzle blast kicked up a cyclone of dust and that, together with the flash, blinded him so that he had no idea what Mr. Bear was doing. But after snatching out one of his ear plugs he knew. Old Bruin was thrashing toward him and bellowing like a mad bull!

You may as well believe that Pom got out of there in a hurry. He ran out and up the hill backwards—all ready to shoot when Bruin popped out of the den. But no bear appeared. The earth-shaking roars continued for about thirty seconds, or a little more. Then they stopped.

After waiting a respectful interval, Pom slipped back down the hill and peeked into the den. About halfway back he could see the bear stretched out motionless. Still cautious, Pom advanced and poked the carcass with his pole and decided the critter was dead.

The next thing to do was to get the bear out of the den, and Pom knew he couldn't do *that* by himself, so he set out to get some help. His father and brother were cutting wood about two miles away and he went after them.

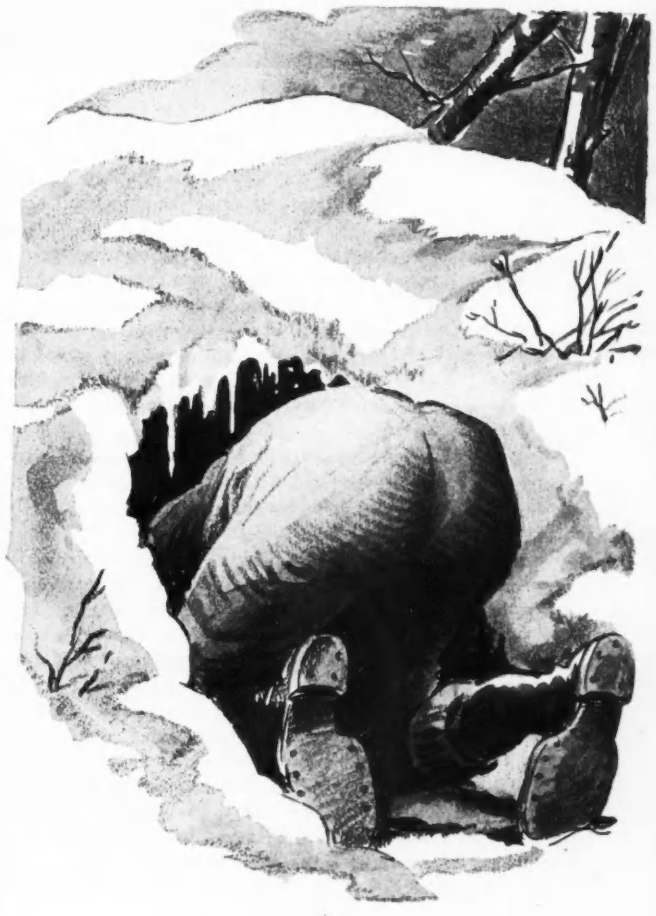
When they returned with axes and a rope, Pom crawled into the cave and tied the rope around the bear's neck. The three of them hauled away and out came the bear.

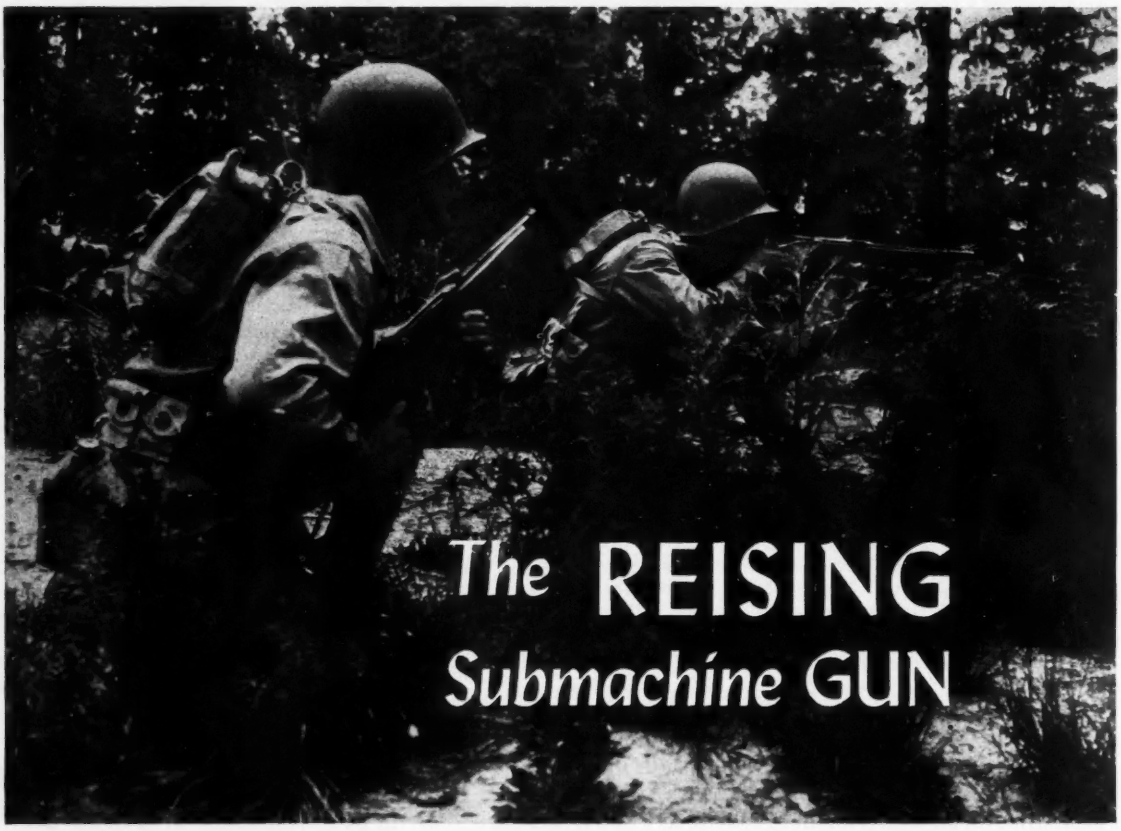
Pom nearly was felled at the size of the critter. Instead of it being a small one as he had supposed, it was a full-grown black bear, about as big as they get.

When they skinned out the carcass they found that the bullet had struck the bear's knee, which evidently had been drawn up alongside the body, and after plowing through the knee joint, had continued on through the heart. A very deadly shot!

Well, that's about all, except that they cut up the meat and packed it out on their backs and so feasted on bear meat for awhile.

But when Pom undertakes to kill another bear, I hope I am up a nearby tree, where I can watch!





The REISING Submachine GUN

ONE OF THE NEW WEAPONS to come out of World War II and now receiving its baptism of fire in the hands of the Marines on the Solomons is the Reising submachine gun, the handiwork of an old hand in small arms designing.

For Inventor Eugene G. Reising this latest weapon is one of the major accomplishments of a career responsible for more than sixty patents on improved designs of all types of firearms—a career which stemmed from his years at Lehigh University but which, in turn, was stalled by Reising's love of the outdoors. Born in Port Jervis, New York, the gun-loving Swede left school to punch cattle in the Southwest. On returning north the young inventor belatedly launched his career as an ordnance engineer by going to work for Colt, assisting the late John Browning during the early 1900's in the final development of the famed Colt .45 caliber Automatic Pistol.

Before delving into the field of submachine guns, Reising notably produced a simplified machine gun during the last war and later designed a variety of repeating and self-loading sporting arms which were manufactured by some of America's largest arms makers. His .22 caliber automatic pistol has many enthusiastic supporters.

Anticipating the need for guns of the submachine type in the then approaching war Reising started to work several years ago on a gun which he hoped would be adaptable for use by parachutists or hard-hitting troops of the commando type, as an auxiliary arm for fast-moving armored forces, or on the home front by guards and special police. His developments and experiments thus brought out, in 1940, this new gun which, like all other Reising designs, is keynoted by simplicity of manufacture.

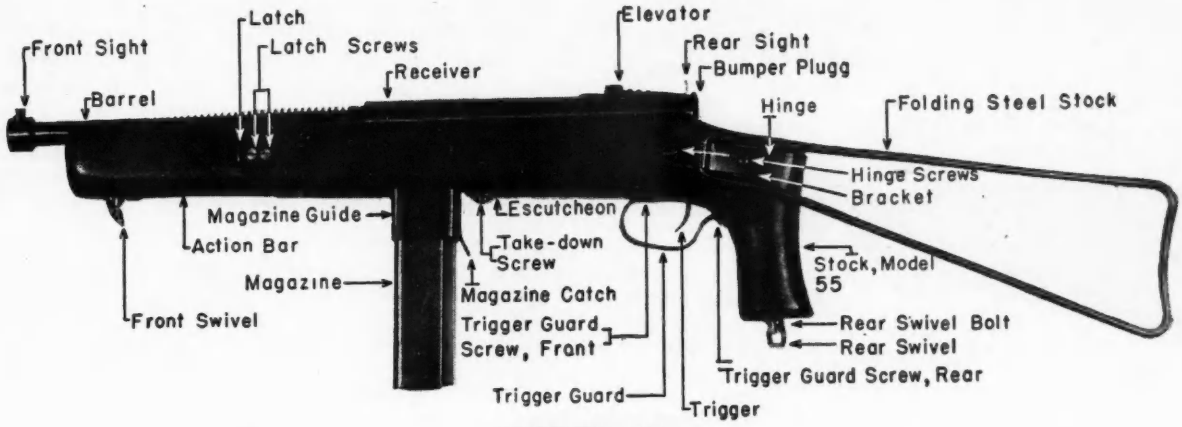
Condensed from "The Leatherneck"

In its present form, the Reising submachine gun weighs only 6½ pounds as compared with the 9¾-pound Thompson submachine gun and the 9½ pounds of the Garand rifle. The Reising M-55 model has a folding butt stock, which cuts down the weight pounds. Eventually, the gun's inventor hopes to cut down the weight to 5 pounds, which the War Department considers ideal for parachute troops, air infantry, motorcycle riders and the close-up work of mechanized units.

The Reising is an air-cooled, delayed blowback, magazine-fed, hand or shoulder weapon which may be fired from any position and with one or both hands. The exterior surface of the rear part of the barrel is made with radial flanges or cooling fins which radiate the heat from the barrel during firing, thus cooling the barrel.

Type of fire is selective, either automatic or semi-automatic. The weapon is fed from a box-type magazine having a capacity of 20 rounds. The gun is intended for intensive fire within a range of 300 yards. Accuracy is high within the stated maximum effective range for this type of weapon since when it is loaded and ready to fire, the round to be fired is chambered, the bolt is in the locked position, and the action is at rest during the period of sighting and aiming the weapon and depressing the trigger, which results only in the motion of the hammer and firing pin.

When a round is fired, the blowback, delayed by the friction of cammed surfaces and the resistance of the action bar spring, is utilized to force the action bar and



MODEL 55

the bolt to the rear, unlocking the bolt, extracting and ejecting the fired cartridge case, recocking the hammer and compressing the action bar spring. On the termination of the rearward motion of the action bar and bolt, the action bar spring causes the action bar and bolt to move forward. During the forward motion, a cartridge is stripped from the magazine by the feed rib of the bolt and chambered. On termination of the forward motion the weapon is loaded, the bolt locked and the piece is ready for firing.

The model numbers indicate only differences in barrel length and size or kinds of stocks. The same mechanism is used in Models 50, 55 and 60 and all parts are interchangeable.

A Marine paratrooper with the compact Model 55 developed especially for his use. Note pistol grip and steel-frame stock.

Model 50 Like Carbine

Model 50 has the usual rifle stock and a compensator. It has an 11 inch barrel and looks like a carbine. Model 55 has a folding steel stock which gives the weapon unusual compactness and makes it suitable for use by those whose duties require that they be armed with a short and light, yet high-powered and accurate firearm. Model 60 is similar to Model 50, except that it has an 18 inch barrel.

The gun is designed to fire cartridges, balls or tracers, caliber .45, M1911 or similar. The magazine holds 20 cartridges. While the 20-shot clip magazine is usually used, a fifty round drum may be substituted.

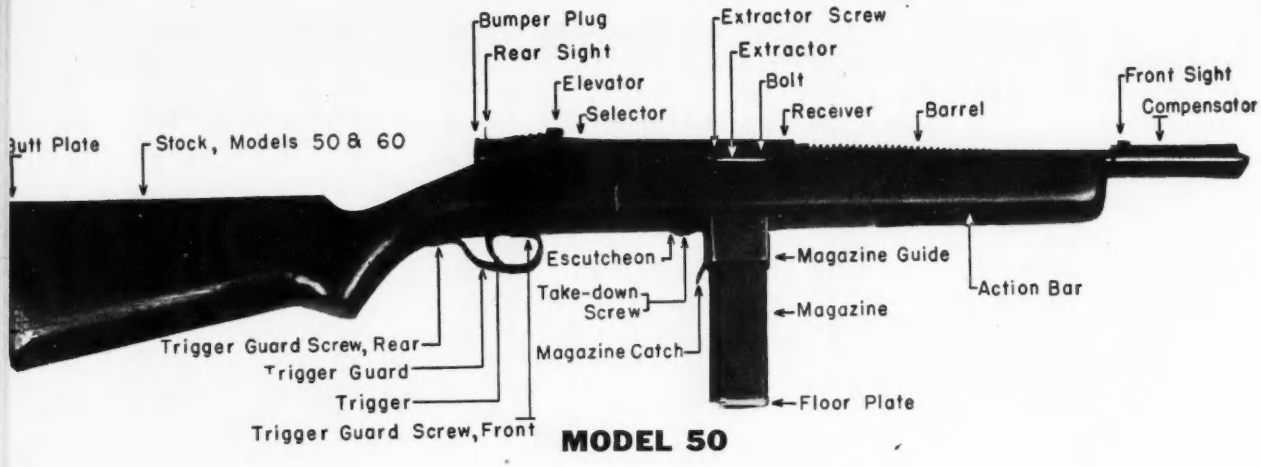
The rear sight is adjustable to ranges of 50, 100, 200 and 300 yards by raising the rear sight and sliding the elevator forward or back until the ears of the rear sight are able to engage into the desired cuts in the elevator. The sights may be calibrated to a true zero at any desired range by filing down the front sights to raise the center of impact or by deepening the cuts in the elevator to lower the center of impact.

The functioning cycle has been divided into three phases: first phase, backward movement of the recoiling parts; second phase, forward movement of the recoiling parts; and third phase, action of trigger mechanism.

The first phase of functioning begins with the piece loaded and ready to fire. The hammer spring has been compressed and the hammer is held in a cocked position by the sear. Every shot in semi-automatic fire and each first shot of a burst as full automatic is fired through the direct action of the disconnector. When the trigger is pressed, the disconnector, which is assembled to the trigger, is caused to move forward, and since the disconnector is in engagement with the sear, the sear rotates on its pin and releases the hammer.

The second phase of action is the forward movement of the action bar and bolt under the action of the compressed action bar spring. The feed rib of the bolt strips the top cartridge from the magazine and carries it into the chamber. The bolt nearing its foremost position is cammed up into the locking shoulder of the receiver by the camming lug of the action bar working in the camming recess in the bolt. The piece is now loaded and cocked, ready to be fired.

In the third phase with the selector set at semi-automatic, the extension of the selector holds the automatic connector out of the path of the action bar and the piece



MODEL 50

fires one shot each time the trigger is depressed as described in the first phase.

In the third phase, with the selector set at full automatic, the first shot of any string of shots is fired through action of the disconnector as detailed in the first phase. Since the extension on the selector no longer prevents the connector from engaging with the action bar, and since pressure on the trigger has not been released, the hook of the connector resides in the connector recess in the rear of the action bar under the action of the connector plunger spring. When the bolt and the action bar have gone almost completely forward into a locked position, the action bar exerts a pull on the connector, which, being attached to the sear, causes the sear to rotate on its pin and release the hammer, thus causing the piece to fire. This same action continues until the magazine has been emptied or the trigger released. Upon releasing pressure, the trigger under action of the trigger plunger spring rotates on its pin and the trigger stud bears against the rear arm of the connector, forcing the connector out of the path of the action bar. The connector then re-engages the sear.

When the selector is set at "safe," the extension of the selector disengages the disconnector from the sear and prevents movement of the connector. The piece cannot be fired.

The Reising has only three moving parts—the hammer, bolt and action bar. Because of the simplicity of its construction the tolerances of error allowable in the Reising are much wider, making it entirely practical to manufacture the gun in any machine shop without special tools. Actually a large part of the machine tools used at the present time to produce the Reisings are fifty years old.

Although special tools are not required, several are being used to speed production. Notably, the Reising barrels are being rifled by the broaching method. Heretofore, gunmakers have rifled barrels by a process requiring the tool to make a number of trips through the barrel, cutting the rifling grooves deeper each time. By broaching, the 11 inch barrel of the Reising Model 50 is rifled in one trip through, taking only one minute instead of the old method's fifteen minutes. With installation of an automatic lathe, only twelve minutes would be required to finish a barrel from solid steel bar to final blueing.

One reason for the Reising's accuracy is the compensator, which is screwed onto the muzzle like a silencer. Slots on its top side permit the gases leaving the muzzle to expand upward, while a small shelf-like projection on the underside of the compensator takes a downward push from the gases, and these two effects combine to keep the muzzle down and on the target, eliminating almost all of the "jump" of the muzzle. The recoil, or kick, also is very slight.

Another feature is the fact that the Reising does not have to be lubricated continuously, and Army tests at the Aberdeen, Md., Proving Grounds showed that it could be fired even when dry of oil. In these tests, 3,470 rounds were fired with but two failures, one due to defective cartridge and the other ascribed to incomplete locking at the breech.

On board a transport en route to the South Pacific, Marines complete their instruction in operating new Reising.

POOR MRS. HRYDCZK . . .

By RAYMOND STAN

NO, MA'AM, THIS IS NOT the Hrydczk residence. Mr. and Mrs. Hrydczk live in the small house half way up in the next block.

Just like Vic and Sade in the radio serial, eh, Sir?

Yes, Ma'am, but there the resemblance ends. The Hrydczks lead a very dull life and would hardly make an interesting soap opera.

Tell me something about Mr. Hrydczk.

Well, Ma'am, he was born right here in Centerfield in 1907. As a boy he attended Centerfield Public School and later was a student at Centerfield High. . . . What is the matter, Ma'am?

You misunderstood me, Sir, I didn't want the story of his life. But you must know him very well to know so much about him.

Everyone in Centerfield knows Elmo Hrydczk, Ma'am. He is very friendly and will talk to you for hours if you will listen to him.

He must be a very intelligent and interesting person if he can talk for so long.

It depends on the point of view, Ma'am, whether he is interesting or not. Most of the people here in Centerfield very quickly tire of listening to him although, perhaps, that is because they have known him so long. I can remember that at one time I could enjoy spending an evening at the home of the Hrydczks.

What is the reason for that? Does he talk of unpleasant things?

He talks of guns and shooting, Ma'am.

I think I should like to hear him, Sir. To me that sounds like an interesting subject since guns have always fascinated me. Does he have a gun?

Ma'am, he has several guns. Only last week he purchased a new one.

He must be very wealthy. Are guns his means of livelihood?

No, Ma'am, he is an auditor at Centerfield City Hall. Neither is he wealthy, although Mrs. Hrydczk has told me privately that they would be in a more substantial position if he were not so interested in guns.

I gather that she does not share his enthusiasm for that avocation. Tell me something of Mrs. Hrydczk.

She is a quiet and practical and very nice woman, Ma'am. All of her friends feel very sorry for her.

How unfortunate for her! Do they have any children, Sir?

Yes, Ma'am, they have two boys.

Are the children also interested in guns and shooting?

All children are interested in guns, Ma'am, but theirs are too young yet to be serious about it.

Perhaps they can still be saved.

Everyone hopes so but it is highly improbable. You see, Ma'am, shooting is more than an avocation; it is a disease.

Literally or figuratively?

Both, Ma'am. Although medical science so far has been unable to isolate the germ for research, it has been reliably reported that it exists.

Is there a cure?

Yes, Ma'am, but it's against the law.

What are the symptoms of . . . ah . . . this disease, Sir?

If you were fishing for a name for the infection, Ma'am, it is known in general medical terminology as "Barrel-itis." As for symptoms, the initial manifestations of the insidious virus may be diagnosed from . . . Ma'am?

I said I can't understand medical language, Sir. Are you a doctor?

No, Ma'am. I learned to talk like that from cigarette ads. But perhaps I could explain the case of the Hrydczks better in story form.

I would be much interested, Sir. When does the story begin?

Several years ago, Ma'am, when Mr. Hrydczk was taken on his first hunting trip. He bought a secondhand deer rifle from a friend.

Did he shoot a deer?

No, Ma'am, but one of them he missed ran into a tree and broke its neck. He told everyone he shot it.

Did they believe it?

No, Ma'am, but they would smile and pat him on the back.

That sounds like it was a mistake, wasn't it, Sir?

Sensibly said, Ma'am. Yes, it was. The more they patted him the more he told the story. Finally he believed it himself.

What happened then?

Well, Ma'am, he became very proud of his rifle. He would sit and talk about it for hours if you would listen, or just sit and fondle it like a baby if you wouldn't. Occasionally he would prowl around the house like a kid playing cowboy and Indian.

Poor Mrs. Hrydczk and the children!

They would be lucky if things hadn't gotten worse, Ma'am.

Did he become violent, Sir?

Not exactly, Ma'am, but the next year his deer used better judgment and missed the tree.

If he didn't succeed that time he should have given up shooting.

I agree with you, Ma'am, but he blamed it on trajectory.

What is that, Sir?

Trajectory, Ma'am, is the path of the bullet. A bullet of high trajectory goes like a mashie-niblick shot and a bullet of low trajectory is more like a midiron shot.

That sounds complicated, Sir. Did he buy a new bullet?

Your ignorance is a healthy sign, Ma'am. He bought a small factory.

On an auditor's salary, Sir?

Merely a figure of speech, Ma'am. Actually his purchase amounted to a few bullet molds, dies, melting pots, powder and the other tools of the reloading artist. But Mrs. Hrydczk admitted they amounted to a tidy sum.

Poor Mrs. Hrydczk and the children!

I am sure, Ma'am, that Mrs. Hrydczk didn't miss the money as much as she did Mr. Hrydczk.

He didn't leave Mrs. Hrydczk—and the children, Sir?

No, Ma'am, not exactly. But he did work in the basement most of the time.

Did Mrs. Hrydczk let him have a little room down there?

He had quite a bit of room, Ma'am. In fact his reloading tools filled her whole laundry room.

Why didn't he use the furnace room, Sir?

He had that filled with lathes and drill presses, Ma'am, and he turned the children's playroom into a testing range.

I don't know what those things are, Sir, but they must have been expensive.

Yes, Ma'am, that is why he sold the car.

Did he finally make a new bullet, Sir?

He made several, Ma'am. The last one blew up his gun.

Didn't that stop him, Sir?

No, Ma'am, he bought a new gun.

Could no one interest him in something besides hunting, Sir?

Yes, Ma'am, they could, but that made it worse.

Could that be possible, Sir?

It is hard to believe, Ma'am, but Mrs. Hrydczk's life was a pipe until he joined the Centerfield Rifle Club.

Why did Mr. Hrydczk do that?

To take up target shooting, Ma'am.

What is that, Sir?

Target shooting, Ma'am, is a reputable sport in which the contestants spend every waking summertime moment lying on their stomachs, shooting at pieces of paper.

And in the wintertime?

They perform physical gyrations in the basement of the hardware store, Ma'am.

Is that all they do, Sir?

Not quite, Ma'am. When exhausted they sit around a coal stove and lie to each other.

That is a sin, Sir. I was taught you would go to . . . .

All riflemen do, Ma'am.

What do they lie about?

Their scores, Ma'am, and their guns.

Did Mr. Hrydczk buy a new gun, Sir?

Yes, Ma'am, an expensive one with special equipment.

Poor Mrs. Hrydczk and the children. Did he like this new gun, Sir?

No, Ma'am, so he bought a new barrel for it.

Did he like it then?

No, Ma'am, so he bought a new stock for it.

It must have been perfect then, Sir.

It was, Ma'am, after he bought a new action. But by that time he had worn out the barrel.

What did he do then?

He bought a new gun, Ma'am, with special equipment.

Is all that necessary, Sir?

He said it was, Ma'am. He was trying to be a Master.

Of his house, Sir?

No, Ma'am, a Master Rifleman. It is the ambition of all riflemen to be one, and it can only be attained after years of practice and tournament experience.

Did Mr. Hrydczk shoot in tournaments, too, Sir?

Indeed he did, Ma'am, all year 'round; all over the country.

Did Mrs. Hrydczk go with him, Sir, and the children?

No, Ma'am, he used to consider it bad luck for a woman to be on a range.

Did he ever reach his goal, Sir?

No, ma'am, but he nearly did a few years ago.

What happened?

He was disqualified at the National Championships, Ma'am, for shooting on someone else's target.

Why did he do that, Sir?

He said he didn't, Ma'am, that he had counted all his shots. It must have been someone else. He was very angry.

That sounds discouraging, Sir. Did he quit then?

Yes, Ma'am, until the next match.

Is he still trying, Sir?

Yes, Ma'am, and he is sure he will make it this year with his new gun.

When did he buy this one, Sir?

He didn't buy it, Ma'am. He made it from his own secret design. It looks like a Ford axle bolted to a young California Redwood and topped with a Naval Observatory telescope.

I cannot imagine what that is, Sir, but Mrs. Hrydczk must have been happy he didn't waste more money.

On the contrary, Ma'am, it cost him two months' salary.

Poor Mrs. Hrydczk and the children. Is that the end of the story?

Yes, Ma'am. I warned you it would be dull. Did it bore you?

No, Sir, not at all. I found it quite interesting. You talk like you might be a writer. In fact, you remind me of a friend of mine named Hemingway.

Thank you, Ma'am, I wish you would tell my editor.

I will, Sir. But who are those two children?

They are the Hrydczk boys, Ma'am.

Is it not rather late for them to be out, Sir?

Not for those children, Ma'am.

Why doesn't Mr. Hrydczk call them in, Sir?

He is out shooting, Ma'am.

Why doesn't Mrs. Hrydczk call them in, then?

She is out shooting, too, Ma'am.

Poor Mrs. Hrydczk!

Yes, Ma'am.

. . . and the children!

Yes, Ma'am.

Youngberg's MODERN LOADS

A DOPE BAG REVIEW

WORKING IN COMPARATIVE OBSCURITY, L. W. Youngberg, of Chicago, nevertheless has managed to arouse the interest of many with his recent developments in long-range loads and bullets. Though the complete story of his bullet-forming dies and swages cannot be told from the material he has made available, the information on these pages and the accompanying photographs should go a long way toward alleviating the curiosity of experimenting powder-burners.

Youngberg's bullets are all long-pointed and generally have good weight and high sectional density. Even the most mysterious combination loads do not impart sufficient muzzle velocity to adequately stabilize them. Instead, they are given a higher velocity from the big belted .375 Magnum case and a higher rate of bullet spin from quick twists of rifling which turn the bullets once in eight inches of forward travel. He apparently is more interested in fine accuracy than in extreme velocities, and so insists on driving his long, slender, pointed bullets only fast enough for stable flight without trying to determine the ultimate possible speed.

The ballistic data which follows accordingly concerns accurate loads only and not the possible speeds, which purposely have been left unexplored. That means minute-of-angle accuracy, or better, at long range by Youngberg's standards.

Vernor Gipson, who also operates his shop in Chicago and is collaborating in the matter of rifle work, chambering and cartridge development, did the barrel fitting and chambering for the Super .300, .280 and 7mm. Magnum. The latter is the plain .375 H. & H. Magnum necked down. The other two have the body blown out .025 inch to decrease the taper and increase the powder capacity. Youngberg got this bigger body shape safely, or without any brass mortality, by doing it as gently as possible with a preliminary light load. This was 28 grains of No. 2400 behind a lead bullet. Consequently, he has never had a neck or shell crack at any point. For example, he used only a single box of 20 cases for his repeated firing in the development work on his Super .280 Magnum without so much as a slightly loose primer pocket.

Youngberg has also played with the little .276 Pedersen, for which he has a bull gun with set triggers for testing. He likes the 7mm. 175-grain S.P. bullet which gives minute-of-angle accuracy in his handloads. The Western 139-grain O.P. and the W.T.&C.W. 160-grain bullets are also good in the .276 Pedersen. He uses the original powder, which is I.M.R. No. 25 and very similar to No. 4198. With 30 grains of this powder behind the 139-grain bullet his group shows nine shots in less than 2½ inches at 200 yards, and all ten in 3⅝ inches. The extreme vertical is just over 1¼ inches. At 300 yards the impact is 8½ inches lower and the spread but little larger, or just over 3¾ inches.

With the 160-grain bullet he used 28 grains of the same powder and his five-shot group, at 200 yards, measured 2¼ inches. With the 175-grain H. & H. bullet for the .275 Magnum he used 29.2 grains of No. 25 powder, and his ten shots at 200 yards measure 2½ inches in extreme spread. Another group of the same measures just under 1¾ inches. Behind the Western 175-grain B.T. bullet for the .275 H. & H. Magnum he used the same charge. Its 200-yard spread was 1⅝ inches.

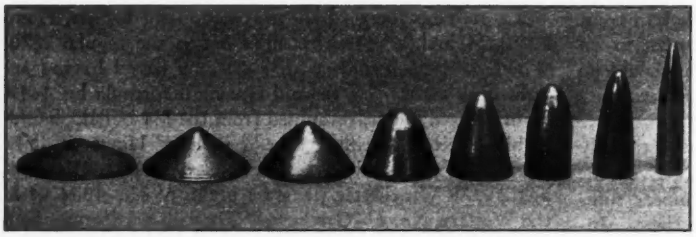
All of Youngberg's bull guns have long barrels, from 30 to 34 inches. Another mild one is the regular .270 Winchester, 16 pounds with a 30-inch barrel having an eight-inch twist. By the old Greenhill formula his 165-grain pointed bullet, revamped from the M1 bullet, should require a pitch of rifling of 6¾ inches. However, it is adequately stabilized in his eight-inch twist. His load in the .270 Winchester was 46.6 grains of No. 4064 with the Western No. 8½G primer. The 200-yard group had five shots in less than 1½ inches and all six in just over 2½ inches. Six shots at 600 yards had an extreme spread of less than 5½ inches and the vertical size was 3⅜ inches. Another ten-shot group with the same load measured 6¼ inches, less than a minute of angle.

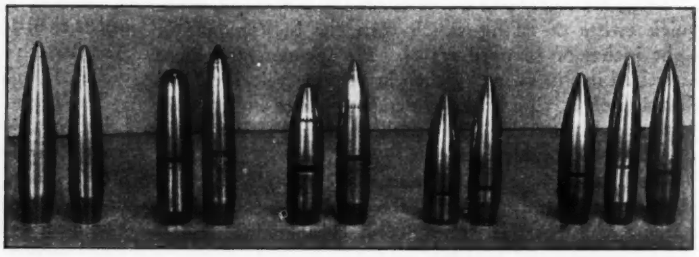
The Super 7mm. Magnum on the plain necked-down belted case is also a 16-pound bull gun with 32½ inch barrel, rifled one turn in eight inches. In this one he used his long 205-grain bullet which has a very high sectional density and a pointed head on a radius of 12 calibers. Youngberg's load was 65 grains of No. 4350 and the No. 8½G primer. At 225 yards his ten shots had a vertical size of only 1¼ inches and an extreme spread of only 1⅝ inches. At 600 yards this combination shot into seven inches with a vertical spread of only 3¼ inches. The Youngberg 7mm. 205-grain is revamped from the W.C.Co. 220-grain bullet in .30-'06 caliber.

Finally we come to the Super .280 Magnum on the blown-out belted case. This bull gun weighs over 16

Youngberg's .280 Super; .300 Super; 7mm. Super and .280 Dubiel are combinations of his special cases and bullets.

pounds with its 32½ inch barrel. It has a rifling pitch of nine inches. The load was 68 grains of No. 4350 behind the 170-grain bullet, a revamped M1. At 600 yards the five-shot spread was less than 5½ inches. The impact was 42 inches lower than at 200 yards, an extremely flat trajectory. Another .280 Dubiel group of ten shots with this bullet and 57 grains of No. 4064 measures about 4¼ inches. With his 185-grain bullet he used 66 grains of No. 4350. A seven-shot group at 600 yards spread less than 5½ inches and landed 48 inches lower than its 200-yard impact. Another ten-shot group with this same combination had an extreme spread of less than 5 inches. The vertical spread was less than two inches.





ABOVE: The evolution of a home-made bullet jacket. Not pictured is the original 1 5/16-inch disk of sheet copper with which Youngberg starts. RIGHT: 205-grain .30 cal.; 185-grain .280; 220-grain .30; 205-grain 7mm.; 180-grain .30 open point; 180-grain 7mm.; 150-grain .30 M-2; 140-grain .270; 173-grain .30 M-1; 165-grain .270; and the 170-grain .280 caliber.

This 185-grain boattail, and Youngberg's .30-caliber boattail bullet of 205-grain weight, are both made by him from sheet copper and, he says, are very hard without intermediate annealing between draws. Both have 12-caliber heads and neither the .280 Dubiel Magnum nor any similar load develops enough velocity to stabilize them. The ordinary .300 Magnum will not stabilize his long-pointed 205-grain bullet, nor will the .30 Newton.

In the Super .280 Magnum the drop of the W.T.&C.W. 180-grain bullet between 200 and 600 yards was nearly a yard less than in the .280 Dubiel Magnum. The 185-grain Youngberg Spitzer was nearly another foot less, or practically four feet less than the 180-grain in the Dubiel. That of the 170-grain bullet, revamped for the .280 Dubiel, was another seven inches less. The latter dropped 42 inches between the two ranges. That of the M1 service bullet from the Super .300 Magnum was 46 inches. That of the 185-grain Spitzer from the Super .280 Magnum was 49 inches. That of the 205-grain Spitzer from the Super 7mm. Magnum was 58 inches, and the same for the 205 grain Spitzer from the Super .300 Magnum. That of the 180-grain W.T.&C.W. bullet from the Super .280 Magnum was 60 inches, and the same bullet from the .280 Dubiel Magnum was 94 inches.

Youngberg's .280 Dubiel Magnum is another bull gun which weighs about 15 pounds. It has a 9-inch twist. His Super .300 Magnum has an old shot-out barrel suitable for impact shooting, but not good enough for accuracy tests, consequently its accuracy could not be determined fairly. Groups with this 205-grain .30 caliber bullet will be reported after a new barrel has been fitted.

"IT AIN'T NECESSARILY SO,—"

(*Continued from page* 14)

From a strictly technical and practical standpoint there is definitely no modern need, or place, for either 20 or .410 gauge shotguns, *except for individual preference*, because if one is desirous of really handicapping oneself in skeet competition or wants an extremely light weapon for upland game shooting, there is not enough difference between the performance of the ¾ ounce .410 and the 28 gauge load to justify the existence of both, but when used on living targets a real sportsman would be careful to confine the distance to between 30 and 40 yards to insure clean kills, depending on degree of choke.

On the other hand the 16 gauge may be secured in about as light weight as the 20 gauge, and in light standard loads of about equivalent effect and recoil, and in addition thereto 1⅛ ounce high speed loads can be secured which, with No. 6 or No. 7 chilled shot, may be considered an effective 45 to 50 yard wild fowl load in full choke guns. This is the lightest load a sportsman or woman should consider for serious wildfowl shooting under practical hunting conditions.

Mellie also expounded the pet argument of small bore maniacs that one must hold closer to hit, otherwise the game escapes wound-free, but I said IT AIN'T NECESSARILY SO,—because the smaller the bore, the greater the percentage of deformed pellets, the greater the diameter of the pattern in equivalent choke at all ranges, and the longer the shot column. The fact is that greater error of pointing with a small bore is tolerable with hits still possible and the greater the likelihood longer, larger diameter, thin shot columns to strike a bird with a few wounding pellets to cause its certain death a little later (but too late to bag). The reason it appears necessary to hold closer, is because that actually, in the hands of most shooters, the lighter gun, and the thinner frame and smaller barrel, is harder to see and swing smoothly on moving targets, and requires more effort in holding to keep from jerky, uncoordinated pointing, and because only the center shot of the pattern will kill outright without wounding. (*To be continued*)

BULLET LUBRICATION

By R. C. SKAGGS

AS THE SUN CAME UP one midsummer morning it shone on a box of .45 Colt cartridges, forgotten and left in the feed box down on Cache Creek where Paul and I had been target shooting. They had been reloaded without even neck-sizing and the bullets did not fit the cases very tightly. Late that afternoon we were down on the flat again for more practice and finding the ammunition, which had stood in the heat all day, we decided to see how it would group. It didn't take much care in holding to find that those which had been standing with the bullet up had been affected. In fact, we were relieved if the bullet got out the barrel. Since then I've been more particular about the melting point of my bullet lub as well as about leaving any ammo in the sun.

In general, I have had better results from hard lubricants than from the softer mixtures. Perhaps with a softer lub there is enough blow-by to blast some of the grease out of the grooves before the bullet has moved forward enough to seal the bore. This might result in uneven and insufficient lubrication. Of course, no matter how hard a lubricant may be, the heat of any blow-by would likely melt some of it, but the loss would not be nearly so great as if it were blown out of the grooves. Sometimes a bullet will seem to run dry toward the muzzle and give poor accuracy, but this does not often seem true with revolvers.

About fifteen years ago I bought a case of .22 long rifle ammo of 1914 vintage from the D.C.M. for about $1.50 per thousand. The grease on the bullets was white and brittle and appeared to have very little lubricating value. We found that this stuff would shoot more accurately in .22 target pistols, such as the Woodsman, H. & R. single shot and Walther than it would in our M-52, indicating sufficient lubricant for a short barrel but not enough for the longer one.

It might seem that lubricating the forward portion of the bullet which first contacts the barrel would result in spreading a lubricating film ahead of the bullet and give satisfactory results. However, it doesn't always seem to work that way. Also wiping and lubricating the bore before each shot shows no improvement over a more orthodox practice. W. E. Spangle uses a .38 S. & W. bullet from a Winchester mould as cast, without lubrication. He uses a wax base wad and says he gets satisfactory accuracy with no leading. Bullets with a graphited wax base wad fired through a clean barrel have shown graphite all along the bearing surface. Wads of various compositions improve accuracy under some conditions.

Most of the powders tested will give the best accuracy with a certain charge, but varying that charge over two-tenths of a grain usually affects the accuracy. With charges heavier than the ideal, a wax wad has given better accuracy. It may be that the wax gives a better gas seal. With heavy loads it also may reduce the melting of the base band of the bullet. The wad also improves accuracy with bullets that are slightly undersize. When all is said and done, however, I have never been able to get as good a group with any kind of wad as with a clean base. There may be some combination using a superior base wad but I just haven't found it yet.

So far, lubricating the grooves has been adequate for my use. There are various ways of doing this, but I would strongly recommend a sizer and lubricator. In using any sizer and lubricator the bullet enters the sizing die and the lubricant is forced into the grease grooves of the bullet. Ordinarily a person thinks of the grooves as being entirely empty at the time the lubricant is forced into them. They are, however, full of air which is sealed from escape by the tight fit of the bullet in the die. This air is compressed to a fraction of its original volume by the high pressure of the lubricant entering the grooves—but it is still there. Examining a number of bullets which have gone through a lubricator in the usual manner will show some interesting things about them. First, and easiest to see, will be some bullets with grooves not quite full even though uniform pressure was used on all. The lubricant will appear to have passed around the bullet from two directions and not quite flowed together. What happened is the imprisoned air had accumulated in one spot and when the air and lubricant pressure balanced the grease stopped flowing. Sometimes air will be imprisoned in two or more places, depending upon the design and operation of the sizer.

On still closer inspection one will see other signs of accumulated air in the grease grooves. The lubricant may appear porous in the grooves when first forced through the sizer and a second trip through the die will result in more solidly packed grooves. Careful weighing of a bullet after its first and second trip through a lubricator shows that it does take on more lub the second time. Sometimes an air bubble will form at the bottom of the groove below the surface of the lubricant. In this case when the bullet is forced out of the die the bubble will expand and bulge the lubricant out of the groove or blow a little hole through it. When the bullets are set in a pan and the lubricant melted around them the air bubbles rise and the grooves are filled.

In trying to completely fill the grooves while sizing quite a high pressure can be generated. I had an assistant last summer who was prone to overdo many things, although his erratic actions taught me some things I might never have learned otherwise. One day while he was sizing some Ideal bullets, No. 358246, in a Star sizer I noticed the base of one of the bullets looked odd so I examined it more closely. It was apparent that enough pressure had been exerted by the grease in the groove to partly push the base band off the bullet. Others in the box were in a similar condition. I jumped to the conclusion that it would take a terrific pressure to do that, and that unreasonable force had been used on the handle of the sizer.

On pulling off the base band the rest of the way I found the metal to be crystalline in structure. Examination of some of the bullets as they came from the mould showed the base band had started to crack off before sizing. The base did not show that it had been struck in any way. I carefully watched the bullet casting and found that when a bullet was knocked out of a very hot mould the instant the metal set it was so friable the crack was started then, due to the bottom or front

BRIDGEPORT, CONN., FEB. 1943

Rifle Remingto

Possibles and Impossibles

by **FRANK J. KAHRS**

There is hardly a day passes that we do not hear from some of our good friends who are now in the service, or read about them in the daily paper. You know who I mean. The fellows we used to meet at the different shoots around the country, at Camp Perry, Quantico, Ritchie, Sea Girt, etc. The boys who are doing the job in the South Pacific and other fighting fronts, and making the headlines, are the ones who were prominent on the rifle range.

* * *

It was one of the people you all know very well who scored 15 X's recently in the steaming jungles of Guadalcanal. Many times we lay alongside of that lad at Camp Perry and saw him score X after X on the smallbore range, and it didn't matter what kind of a gun or what range he shot on . . . it was always the same . . . he was right there with the .30 Springfield or the bull gun and the .45 automatic. He was just a natural shot with any kind of a gun, and it's just too bad for the target he draws a bead on.

Now there are many fine fellows just like him out there doing their jobs. It is a fact that the Marine Officers who are leading the men in the Solomons are former members of the Marine Corps Squad . . . which means that they were either officers of the Marine Corps Team, or shot on the team, or both . . . and that's bad news for the Japs.

* * *

We know of at least two Admirals in the Navy who were familiar figures at Camp Perry when the Navy had a team in the National matches. As a matter of fact, one of these Admirals . . . who recently led a task force and who helped, incidentally, to reduce the fighting strength of the Japanese Navy . . . won the National Individual Rifle title and the National Individual Pistol title in one year when he was only a midshipman at the Naval Academy. If my memory serves me right, he is the only man who has ever accomplished this.

There is another Navy man we used to shoot with at Camp Perry who is Commander of a submarine in the South Pacific and who, early in the fight, received the Navy Cross for Conspicuous Performance. And there are many more of the same type of men who are giving an excellent account of themselves on the battle front.

* * *

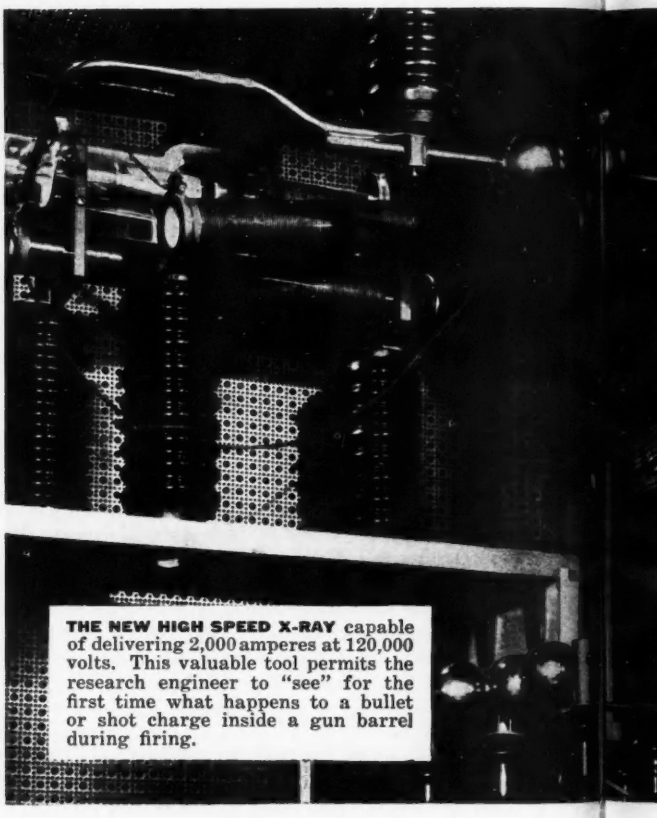
On the home front there are a great many riflemen doing their bit training men who, sooner or later, will be on the fighting line.

The other day we had a letter from a Marine officer who gave us some first-hand information of the value of accurate rifle fire.

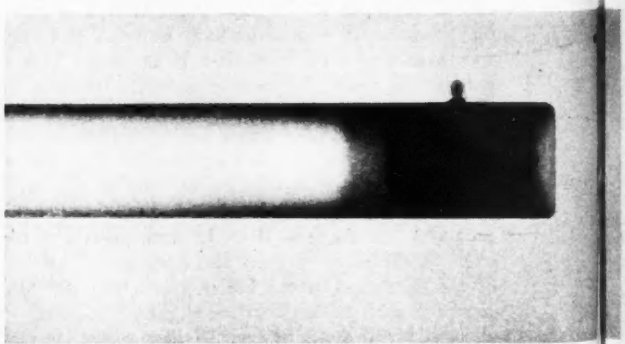
He said that when a bullet misses the mark and goes whizzing by the enemy's ears, it only makes him mad. But when one of these 170-grain bullets, with a velocity of 2,600 foot seconds, *connects* the enemy, he loses all interest in the war and ceases to be of value to anybody. (In his letter he put it a little more bluntly, but we give you the general idea.) He urged continued interest in rifle shooting at home and the training of all men in the art, in order to insure peace for the future.

WHAT GOES O

New high speed X-rayph



THE NEW HIGH SPEED X-RAY capable of delivering 2,000 amperes at 120,000 volts. This valuable tool permits the research engineer to "see" for the first time what happens to a bullet or shot charge inside a gun barrel during firing.



HERE'S WHAT A LOAD of shot looks like as it is about to leave the zle of your shotgun. You can see the wads acting as a piston, as well he formation of the shot column. Inasmuch as this equipment is now ng devoted wholly to military bullet study, further information co n- ing bullet action cannot be divulged at this time. Rest assur at when the time comes, Remington will produce ever-finer sporti re- arms and ammunition for target shooter and hunter alike.

emington News

A PAPER FOR PEOPLE WHO SHOOT

S ON INSIDE A GUN BARREL?

ayphotographs bullets and shot inside gun barrel

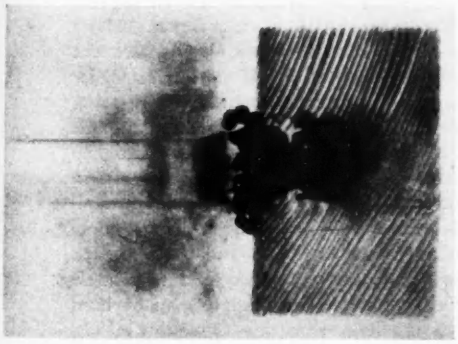
The question, "What goes on inside a gun barrel" has long puzzled ballisticians, who had no means of studying the action of a bullet or shot charge inside a gun barrel.

However, with the new high-speed X-Ray, actual photographs can be taken of a bullet or shot charge in flight inside a gun barrel. Remington research workers cooperated with Westinghouse in the preliminary stages of this development. Remington then built the first high-speed X-Ray unit to be used for ballistic investigation.

Takes pictures through 1 inch of solid steel

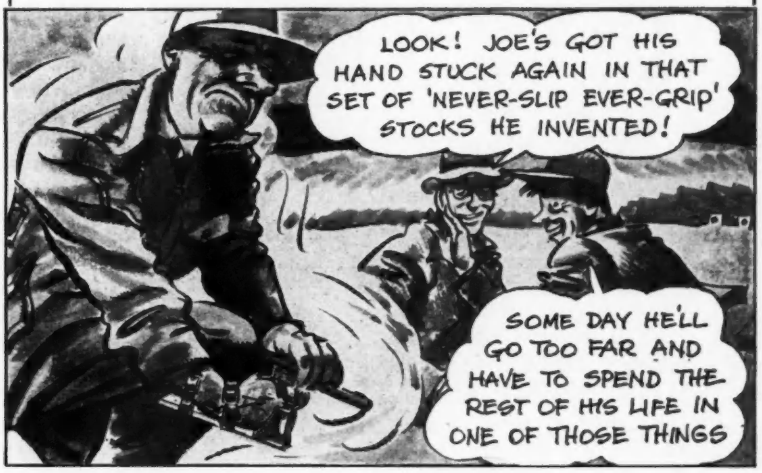
The Remington-built equipment delivers a jolt of approximately 2,000 amperes at 120,000 volts in a millionth of a second, or the time required for a .30-caliber bullet to travel one-thirtieth of an inch. Similar equipment is now in use at the Government arsenals which operates at 300,000 volts and is capable of taking two pictures of the same bullet in rapid succession. This equipment is capable of taking pictures through one inch of solid steel.

Remington's plant facilities and technical skill have been enlisted in the task of winning the war, and for the present, the major uses of these units will be the study of military ammunition and bullet action within gun barrels and on armor plate. Eventually Remington research engineers will utilize these amazing machines and the scientific facts they reveal in producing even finer sporting arms and ammunition than ever before.



A CHARGE OF SHOT X-RAYED as it penetrates a block of solid pine. Wads can be seen behind the charge. Photographs such as this that will show the action of bullets and shot charges will be of invaluable aid to the ballistician in designing better ammunition for your hunting and target shooting pleasure.

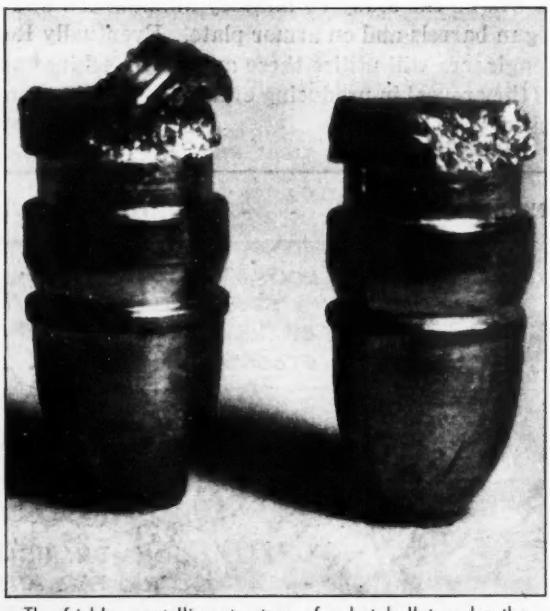
THERE'S ONE IN EVERY CLUB - - - *THE GADGETEER*


LOOK! JOE'S GOT HIS HAND STUCK AGAIN IN THAT SET OF 'NEVER-SLIP EVER-GRIP' STOCKS HE INVENTED!
SOME DAY HE'LL GO TOO FAR AND HAVE TO SPEND THE REST OF HIS LIFE IN ONE OF THOSE THINGS

end of the bullet swinging out before the base band could free itself. While the mould was casting in this manner I tried grabbing up a bullet by each end with a pair of pliers and giving it a quick squeeze and twist. I found it would crumble almost like a piece of chalk if one was quick enough. Of course, if a fellow looks around for a place to lay the mould after knocking the bullet out, picks up a pair of pliers with one hand, adjusts them, picks up another pair of pliers with the other hand, flaps his ears and shifts his weight from one foot to the other and then gives the bullet a slow, steady pull—he will decide I'm all wrong. One should, after knocking the bullet out of the mould, try to catch it while still in the air with the pliers. It all has to be done in somewhat the same spirit as a fellow who tries to turn out the electric light and get in bed before it gets dark.

Some shooters believe that, since wax wads are often used with good results, the little lubricant which may inadvertently get on the bullet base during the sizing operation will do no harm. The trouble is uneven distribution. I moulded pieces of Ideal lubricant a little smaller than a match head near one edge of the base of twenty bullets. Then I marked twenty cases on one side and loaded the bullets with the grease daub in line with the mark on the cases. These were shot with the lub in question in various position. The two groups averaged 5¼ inches, whereas this load ordinarily gave about two-inch groups.

Some sizers which have had quite a lot of service may give trouble with the lubricant flowing between the base of the bullet and the bottom punch. At times when the pressure on the handle is released the grease pressure will force the bullet and bottom punch apart as much as a quarter of an inch or more. This is more likely in hot weather or with a soft lubricant. I have avoided this in two ways. First, I learned the bottom punch in one sizer could be a half thousandth of an inch larger and still work smoothly in the die. I made a new one to fit the die as closely as possible and ended most of the trouble. Later I obtained an automobile valve spring and rigged up a gadget to keep a constant pressure against the bottom punch.



The friable, crystalline structure of a hot bullet under the base band is shown. This bullet is Bond No. 358-705.

Sometimes lubricant is thrown out of the grease grooves by centrifugal force after the bullet leaves the gun. I have found bits of it stuck to the target at fifty yards. Whether this would affect accuracy suggested another test. Selecting twenty 150-grain round nose bullets I bored a ⅛-inch hole halfway through one side at the middle band. These bullets, Bond No. 358-705, normally shoot less than 2-inch groups without any trouble. After boring the hole and loading as usual, they gave on firing one 4½-inch and one 5-inch group.

To determine whether two grease grooves are better than one, Ideal bullet No. 358311 was tested with Ideal No. 358250 and Hensley's No. 28 was tested with his No. 39 and the groups compared. In each case the accuracy was slightly better but I still was not satisfied with results; so I asked Carl Cramer to make me a three-cavity mould, cutting one cavity for his No. 10 bullet, one for his 10A and one for the 10B. Now I am able to cast the three bullets at the same time and eliminate chance of difference in metal or casting temperature. In comparing these three bullets for grouping ability the two-groove bullet again gave best groups, but the bevel base single grease groove out-performs both the others. In considering the distribution of lubricant, one is apt to think it desirable to dip the bullet of a loaded cartridge in melted lubricant up to the mouth of the case and thus improve the accuracy or reduce troublesome leading. Personally, I am opposed to adding anything to regular loading operations as they consume too much time if much loading is done. Of course, when a definite improvement can be made by an extra operation that can be had in no other way, that would mitigate the annoyance. However, adding outside lubricant to a cartridge that already had a good inside job is seldom worthwhile. I once fired 50 shots with both outside and inside lubrication in comparison to 50 shots inside lubricated only. The improvement of the outside dope was an average of 1/16 inch for this number of shots. I wouldn't dip the bullets for such a small gain even for a turkey shoot where the shots cost me four bits each. Definitely the law of diminishing returns has begun to operate. Of course, if one does not have a good inside job of lubrication then it is an entirely different story.

Not all of the accuracy problems of lubrication are solved when the bullets are ready for seating. The collection of lubricant which builds up in the seating die often is sufficient to change the seating depth. Many shooters simply clean it out whenever they notice the bullet being seated too deep. If this is done the reloader must watch closely for the first signs of increased seating depth and, with the bench type tool, remove the die each time it is cleaned. To get around this monkey business I chucked the bullet seating stems of my Pacific tools in the lathe and bored a 3/32 inch hole through them to allow the escape of imprisoned lub. This works fine when the bullet fits rather snugly and the case neck is crimped. However, when the bullet seats with little resistance or the case is left uncrimped it may be hard to force it out of the hole, especially in cold weather. The first time I was bothered with this the seating die was warmed to a temperature above the melting point of the lub being used. As long as the die was warmer than

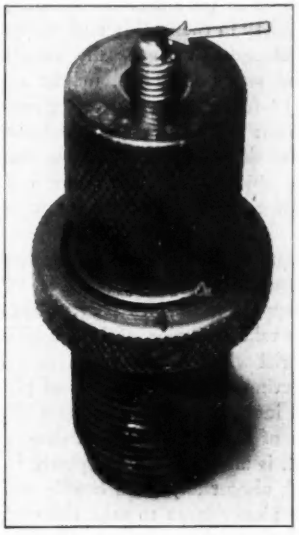
the bullet, the lub would adhere to the bullet and not the die. I took some asbestos paper wrapped around a tin tube and wound it with some fine Nichrome resistance wire making a jacket for the die to keep it warm. This was more or less monkey business but I've wasted more time with less results on many other things.

There seems to be a wide divergence of opinion among handgun shooters as to the effect of lubrication on accuracy. Some will use any bullet lub and others are very particular. Some think as long as a gun doesn't lead, the bullet greasing job is well done and perfect accuracy is certain. The truth is that there is some difference in the accuracy which can be obtained with different kinds of lubricants, but that lubrication is only one of many factors. It is really more important to do the job right than to use a particular kind of lub.

A few words on formulas and composition of bullet lubricants may be in order. Many times the need for a tentative solution arises where finality at the time is impossible; and the philosophy of this first part is that half-light is better than no vision. So I'll try to give the reader an idea of what can be done with ordinary lubricant at two bits a stick in the belief that this will satisfy most handgunners, especially in view of the fact that other improvements in loading will be made available to them before long. Before considering the blending of the components into a lubricant it would be well to study the properties of some of the various waxes, fats, oils and greases.

All waxes which may be used melt below the boiling point of water and their flash points are lower than that of cylinder oils. The hardness, melting point, and "plasticity" of the same kind of waxes may vary from one lot to another. There are different kinds of beeswax. I don't merely mean different degrees of bleaching or refining, but different kinds. Beef tallow will vary considerably in firmness. That taken from one part of the animal will vary from that taken from another part. An animal fed on grass will yield a firmer tallow than one fattened on cottonseed cake. All these things are common knowledge to the industrial chemist and the farmer knows there is a difference in lards as does the housewife. Most of us remember hearing our wife or mother specify leaf lard, not just lard. I have a can of goose grease just rendered out this fall which is liquid at ordinary temperatures. My shop hasn't been cold enough yet for it to solidify. Then I have a can of bear fat also rendered out this fall that is only solidified on cold mornings. After warming up the shop it melts. Animal fats of various kinds often have been an ingredient of bullet lubricants or used alone for that purpose ever since bullets have been greased. But most of them are too soft or have too low a melting point to be used under many conditions. Their chief virtues are availability and inexpensiveness, and are sometimes useful in reducing the hardness of a lubricating mixture or in altering its texture.

The vegetable waxes or tallows and insect waxes are many times too hard to use alone. They are usually used in combination with other softer lubricants to raise the melting point and give staying properties to the mixture. Beeswax and Japan wax are the most commonly used in this class. Carnauba wax is the hardest and has the highest melting point of any wax the shooter is likely to find. This wax imparts hardness to mixtures it may be a part of up to 5 per cent, but above this amount the increased hardness is not in proportion to the amount added. It also imparts a brittleness to the mixture. The melting point of carnauba wax ranges from about 74 degrees to 80 degrees centigrade. Both it and Japan wax melt more readily after recent melting than after long standing in solidified state. Some observers have placed the melting point of well-aged carnauba wax as high as 90 degrees centigrade. Beeswax melts at about 65 degrees centigrade and lanolin about 40 degrees. The melting points of waxes are difficult to determine accurately and vary with the age and origin of the specimen.



If collected lub in die changes seating depth, a 3/32-inch hole bored through the stem might allow escape of the imprisoned lub.

When most shooters think of paraffin they think of Parowax, the type used to seal jelly glasses. There are other grades which have a higher melting point and are harder but one must get them from an industrial chemical supply house. Wax should not soften too rapidly when heated or the lubricant with which it is compounded will not work well. A satisfactory lubricant should be plastic but not viscous, to any great extent at least. There is no necessary relationship between hardness and viscosity. The best way to test the hardness of a lubricant outside of giving it a service test is to use a standard penetrometer needle, such as is used in testing asphaltic products. This way a test may be made quickly at two different temperatures and the ability of the lub to maintain a relatively stable consistency observed.

Many persons are interested in what is done at the factory so I will list the mixture a worker in one of the ammunition companies once told me they were using.

For center-fire inside lubricated bullets:

9 pounds Japan wax.
4½ pounds paraffin.
4½ pounds beeswax.

For outside lubricated bullets such as .22's:

10 pounds paraffin.
10 pounds tallow.
5 pounds beeswax.

A few years ago I obtained about ten pounds of rod dope which is used on locomotive rods and found it had a suitable consistency to use in the sizer and lubricator. A railway shop worker assured me it was of very high quality so I started using some on my handgun bullets. I wanted to mix some oildag with it but I could not melt it satisfactorily and had to do the job with a putty knife. When heat was applied it would just lay there long after any other lub would melt and finally would simply bubble up and foam. It worked all right but was so messy I quit using it. There was no leading with it and the melting point was plenty high.

BATTLE SCENE *at* FIFTY FEET

By WILLIAM E. PETERSON

PROBABLY YOU HAVE HEARD OF, or actually seen, one of those combat ranges where figures appear suddenly in unexpected places, stay put long enough for you to squeeze off a shot or two, then disappear to be replaced by other figures, in other places. Mighty handy layouts for a club to have, particularly nowadays when simulated combat practice is so desirable in pre-induction training or as a means of injecting variety in the weekly club shoot.

But to produce one of these set-ups generally entails considerable engineering and expense. Then, maybe all you have to play with is a 50-foot range—indoors or out. Well, here is an arrangement which is benefited, not handicapped, by the 50-foot distance since construction is much easier and the other objections of cost, labor and materials are eliminated. The range is not ruined for other use, either.

Get a length of 2-inch square pine or spruce. The one illustrated is 8 feet long though it can be up to 16 or 18 feet if a central bearing support is used to prevent sag. Drill a hole in each end to take a section of broomstick handle or other round material which should be driven in, leaving 6 or 8 inches projecting. Cut four pieces of ply or other thin wood, about 4 inches long and 3 inches wide. Nail them to the four faces of the square stick as shown. This, plus a length of cord, is all you need to operate it.

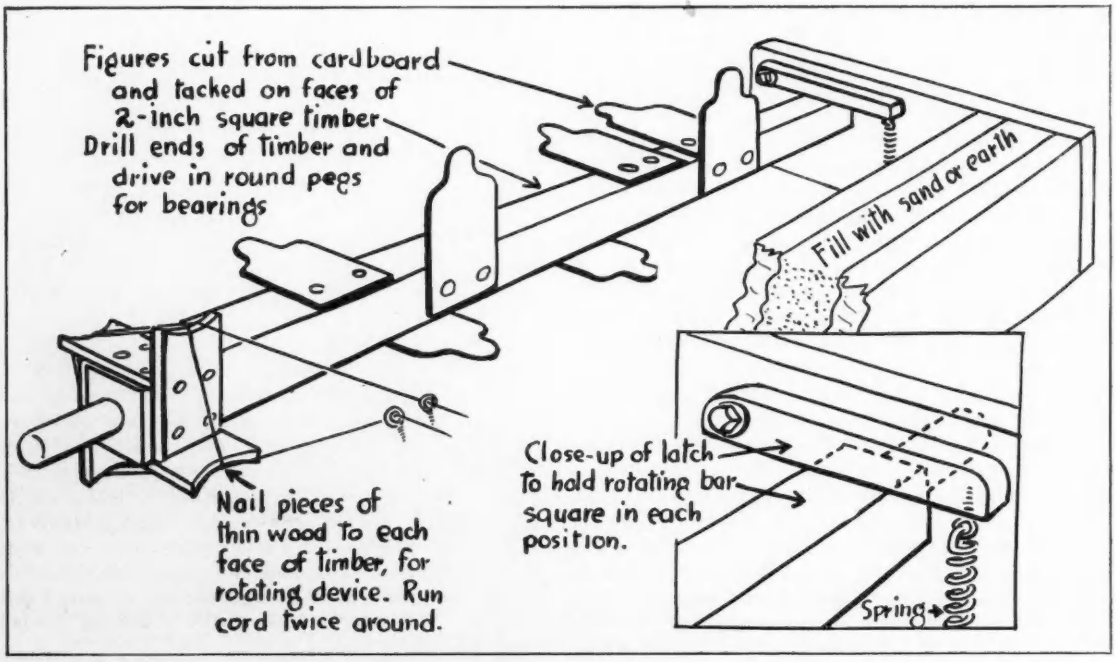
For bearings at each end, almost any good boards will serve. Drill holes in them plenty large to take the pegs projecting from the ends of your square timber. Drill one of these boards for a ¼-inch bolt, and drill a piece of 1- by 2-inch wood to take the same bolt. This is the latch that holds the bar in each position. It should be about 10 inches long, centered over the square bar, and held down by a fairly strong spring—or a weight if the spring is not available.

For an outdoor range, dig a simple trench in which to install the bar. Drive a couple of pegs at each end, and nail the bearing supports to them, high enough so the cardboard figures will show head and shoulders above the lip of the trench. On an indoor range, you will have to provide some kind of bullet stop in front of the bar. A few old railroad ties would serve, or any secondhand lumber. The earth-filled arrangement shown, using 2-inch by 8-inch planks, works very well.

Next, cut the figures—3 inches wide, 5½ inches high—from any thin cardboard. Thumb-tack them to three faces of the square bar, locating them irregularly. Leave one face of the bar blank for the start and finish of the run. Then lead the cord, through guiding screw eyes, from the firing point down around the turning device, and back to the firing point. Knot the ends together, and you're all set. This whole job, construction and installation, should require only two and a half hours—one man's time.

A light pull on the card will pull the bar around one-quarter turn, bringing up the first set of figures. Another pull will drop them and expose the next set—and then the next. Eight figures in all are exposed and each shooter fires eight shots to complete the course. Time limits, of course, will depend upon such factors as the type rifles used and experience of the shooters, but should not be so fast as to encourage snap shooting rather than a carefully aimed shot. This makes an interesting pistol target, too.

A trick like the "Jumping Jap" may be just what is needed to put zip into that class or club program.


Figures cut from cardboard and tacked on faces of 2-inch square timber
Drill ends of timber and drive in round pegs for bearings
Fill with sand or earth
Close-up of latch to hold rotating bar square in each position.
Spring
Nail pieces of thin wood to each face of timber, for rotating device. Run cord twice around.

TOOLING UP THE HOME WORKSHOP

By CLYDE BAKER

The home workshop is the best means we have these days of keeping our guns in repair—guns necessary for training, for predator control and Home Guard work. The "Home Workshop" series of articles is offered, therefore, as encouragement to a hobby which should be put to work for the war effort. Mindful of priorities, however, in tooling up, we suggest a search within your neighborhood for equipment not used by men now in the service or those who have lost interest in the home workshop hobby. A classified ad in your local newspaper would undoubtedly unearth much of this equipment, and get you started on an enjoyable, vitally important hobby.—ED.

Bench Equipment and Small Tools

(Continued)

The Metal Working Bench: Here you will perform all usual operations on barrels and actions, including repairs. The same vise and tool rack arrangement as suggested for stocking is good, but the latter will contain mostly files, screwdrivers, and the like. Screwdrivers are the least expensive good tools so it will not be too costly to have your screwdriver outfit virtually duplicated on both benches. For files, study the catalogs of leading manufacturers mentioned last month and begin acquiring flat and half-round single- and double-cut files, hand files, pillar files, Swiss pattern files in all the various shapes, die sinker's needle files, die sinker's and silversmith's rifflers, and so on. By all means get hold of two or three so-called "chequer files" for scoring evenly spaced lines on metal. Stoeger has them, American Swiss makes them—they're swell for matting ribs, ramps, receiver tops, etc., and perfect for accurately laying out teeth on checking tools and floats.

And for "striking" barrels—a few best grade files used only for this purpose. For rough striking, the widest and finest-toothed single cut mill file you can find; for finish striking, the widest and finest-toothed Swiss pattern hand file, either American Swiss or Nicholson. "Striking" simply means draw-filing the barrel from breech to muzzle —the file being laid at right angles across the barrel and pushed and drawn with light pressure its full length, gradually working around the barrel's surface. For straight tapered barrels, the American Swiss "bench file", 3 inches wide and of a very fine Swiss cut, is unsurpassed. For barrels having a slightly curving contour from breech to muzzle, a Swiss pattern hand file 1½ inches wide, is tops. "Striking" removes the slight irregularities of turning, giving a barrel its clean, graceful sweep from breech to muzzle, and is regarded as an essential operation by good gunmakers, even those who are equipped for finish-grinding barrels in the lathe.

The very wide "bench file" has other uses—particularly the finishing of flat surfaces on small parts. The file is laid flat on the bench and the part, held firmly in fingers, is lightly stroked over its surface, against the teeth. No other method of filing can produce such a perfectly flat surface, and it is especially useful on odd shaped parts, such as hammers which cannot readily be held in the vise.

Here on the metal working bench, is also the place for some good hammers—ball pein from 4 oz. to 1½ pounds; a light riveting hammer and two or three sizes of brass and copper hammers, not forgetting a 3-lb. lead hammer; and if you can afford it, a 5 or 6 pound rawhide maul. Also drift punches from 1/16 to ⅜ inch; cold chisels in the several shapes available; a really *good* hacksaw and a dozen best tungsten steel or "Blue Mol" blades; assorted pliers of best quality in several shapes and sizes; and various home-made matting and stippling punches such as have been described previously. Two or three small bench blocks of brass, lead and steel, and some sort of small "Bench anvil" such as an 8 inch length of railroad iron.

Punches, chisels and the like are best kept in small blocks or stands where they stick up in plain sight for quick selection as needed. It will pay to have, for miscellaneous small tools, one or two small cabinets of shallow drawers plainly labeled as to what they contain. These may be obtained in sheet metal, at small cost, from the mail order houses; or assembled from cigar boxes if you have the time and inclination.

Drills, Taps and Dies: These belong to the metal working bench. High speed drills, if you can get them, will pay in the long run—you'll need a full set of number drills from 1 to 60, a set of fractional sizes from 1/16 to ½ inch, and if possible, the letter sizes from A to Z. Many odd sizes are encountered in gun work, and you need all these, or will eventually. And be sure to keep a few "spares" in the sizes most used and in the smaller ones most liable to breakage.

A complete set of taps and dies, both fine and coarse thread, from ¼ to ½ inch, and the B.W.G. sizes from 2—56 to 12—24, not forgetting the special drills and taps for various makes of receiver sights—these are usually obtainable from the sight manufacturer. One die of each size is sufficient, but small taps are usually broken, and it is better economy to have a few spares than to risk tying up a job while a new one is being obtained.

Convenient stands for drills and taps may be made by drilling holes in hardwood blocks, or they may be kept in small drawers, suitably labeled. Drills are mentioned, since the drill press is usually used on, or closely adjacent to, the metal working bench. A floor stand drill press costs little more. But if you must use a bench drill, then make a sturdy pedestal for it and get it off the bench and out of your way. This goes also for grinders, buffers, etc. Don't clutter up your bench with power tools, but keep it clear to work on.

When assembling your various punches, don't forget a few short lengths of brass, copper and fibre, for driving sights in and out, and similar not-to-be-marred work.

The Hell-Box (name stolen from the printing fraternity) is a convenient catch-all near or under the bench. Into it you toss every old useless barrel, discarded part, bolt, nut, rod, bar—every bit of scrap metal you accumulate. You'll soon find that almost all the material you need for small parts you have to make, comes out of the Hell Box, at no cost.

Rob the "little woman's" fruit closet of all the small, screw-top glass jars you can find; assemble a neat row of these along some shelf convenient to the bench, and start stowing away, as you are able to acquire them, the various machine screws you'll be needing . . . from 2—56 up to ¼". Label each jar with a small gummed sticker showing the size, and cover the label with a strip of Scotch cellulose tape to keep it clean and legible.

Filister head and flat countersunk head screws will both be needed—but mostly filister; you seldom if ever need round head screws in gun work.

May as well also acquire a modest assortment of wood screws, both flat and oval heads, mostly for butt plates and the like, and stow them in like manner.

If you have no drill press, or if you have the best one in the world, you'll still need a good hand drill and a good breast drill; and a small electric drill, with ¼" capacity is a handy thing now and then. The Gooddell-Pratt line is one to be considered in tools of this type.

There's one little power tool that has so honestly and fairly earned its place in the modern shop that it may well be considered as one of the essentials. . . . I refer to the tool commonly called a "Hand Grinder." There are several models and styles, ranging from nine or ten dollars up to thirty dollars or more. Best known is the *Handee*, an excellent, precision built tool, well adapted for light work; and several others nearly as good in this size-class, with some very excellent ones in the Sears Roebuck line. But time and experience eventually showed that none of these neat and easy-to-hold tools had quite the power needed for day-in-and-day-out gunshop work. I eventually found perfection in the DURO Heavy Duty Grinder, with its several adaptors and accessories. It's shaped like an overgrown sweet potato, and is a slightly awkward handful until you get used to it—after that you wouldn't trade it for a Hollywood blonde! It has full precision ball bearings, runs at 24,000 rpm, (much faster than others) and delivers over 40 watts output—more than twice the power of most one-hand grinders; and it's the only tool of its class I've found on which you can bear right down without causing it to slow up to a point of complete non-efficiency. On my recommendation this grinder was adopted in the Navy shops where I am now detailed, and has given utmost satisfaction under hardest service for nearly five months, and is still as good as ever.

There are a million and one uses for a good hand grinder in the gunshop, and new uses crop up constantly, both in metal and wood work. Besides numerous hand uses, it makes an excellent lathe grinder, and, with a speed control rheostat, combines with inexpensive fixtures into a splendid light model-maker's lathe, drill press, etc.

Where a heavier grinder, for two-handed use is required, the best I've found is the Handee Hi-Power Grinder—product of Chicago Wheel & Mfg. Company, Chicago, Ill.—which firm, incidentally offers a complete line of wheels, points, burrs, polishers, discs, and what not, adapted to any and all makes of hand grinders.

It will pay any practical or aspiring gunmaker, amateur or professional, to obtain the catalogs of manufacturers and study them religiously. Tool catalogs are the real "post graduate" textbooks of the intelligent mechanic. Though they are surely justified in "telling the truth attractively," manufacturers do not lie or deliberately mislead about their products, and careful study of the descriptions and potential uses of their various products, will surely improve the qualifications of any mechanic, anywhere, any time, and in any field of endeavor.

And the gunsmith, particularly, should be able to realize that no unfair partiality is intended when a writer states that this or that make or model is better adapted than some other make or model, to a particular purpose. He has been making similar comparisons of the guns he knows ever since he began knowing anything about guns. So let us discuss our tool needs as frankly, honestly and fairly as we discuss our guns, with no one taking offense.

An Electric Soldering Iron should be available to the metal working bench; so also, should be some other source of heat—a gas jet, Bunsen burner, or blowtorch. Some such accessories are needed, aside from the more complete layout of the "HOT BENCH" which will be discussed later in greater detail.

Don't forget, near the metal working bench, a quart can of linseed oil for quick blueing of screwheads, pins, etc., and a squirt-oilcan of either lard oil or sulphuretted cutting oil, for use with drills, taps and dies. Also, a good sharpening stone or two, of Carborundum or Aluminous Oxide for touching up edges of metal cutting tools; a squirt-can of lard oil and kerosene, half-and-half, for use on stones; another of straight kerosene and a lump of common chalk, both for use on files; and last but not least, since files are fundamental, a good file card or wire brush for keeping them clean and in proper working order at all times.

You'll never be a mechanic until you're a filer . . . nor will you be a filer until you've learned to keep your files clean.

The best I could hope to do, when outlining a general tool setup, is to touch briefly on fundamentals. As the mechanic in you develops, you will find yourself thinking ahead, on constructive lines, and carrying on from where I must, in the nature of things, leave off.

(To Be Continued Next Month)

SCHOOL WORKSHOPS: "Philadelphia public schools may soon be producing 37 mm. antitank and anti-aircraft shells. Turret lathes capable of turning out 25,000 such shells monthly have been set up in Mastbaum School annex and officials have notified the Philadelphia Ordnance District that they are ready to go, on receipt of steel."—from *Army Ordnance Bulletin.*

The Old Coach

AFTER THE BASIC COURSE—WHAT?

A VERY IMPORTANT MATTER that we are concerned with at present is what to do about those young men who are graduating from the basic course in our Small Arms Firing Schools, and who are not to be inducted at once into the armed services. We want to keep them with us, retain their interest in the game and complete their thorough training as riflemen. Eventually, if they are not called to serve we hope we can make them into instructors to train other young men.

It should not be very difficult for any club or other organization with imagination to work up a program and to find the necessary facilities to keep these young men interested and working. The course that they have just completed, slow-fire gallery shooting in the four positions, has been a basic course only. It is essential, of course, that everything in it be mastered before proceeding further. A man must have a firm foundation before he can profitably take up practical field shooting.

An advanced training course should include lectures, demonstrations and shooting, and cover such matters as the flight of the bullet, trajectory, firing at different ranges with the involved sight adjustment, wind deflection, rapid fire, and firing at moving ground and air targets. A club can profitably start such a course after their Small Arms Firing School has completed its first basic course. Try to enroll all who have completed the basic course in it. Some of the old club members could also take this advanced course with profit and interest.

It is your old coach's thought that it will be impracticable in most cases to carry out this advanced course entirely in the gallery. The lectures and theoretical data can be given there, but there must be shooting as well. We can hardly shoot at different distances nor get actual experience in wind doping, indoors, although the mechanism and practice of rapid fire can be very profitably taken up in the gallery. However, a whole lot of this instruction can be done outdoors, even in winter weather, with no trouble or cost, and without having a completely equipped range.

I do not visualize necessarily a level field facing north with a backstop behind it. A quarry, or the side of a ravine will do, or anywhere that we can see ground at two or three distances. When the place is found and the matter explained to the landowner he will be patriotic enough to give his permission and usually his enthusiastic support. In the meantime you run a salvage campaign in the club for broken and chipped crockery, plates, saucers and cups, and even empty bottles. If you have a near artist in the club let him paint Nazi and Jap faces on them to make them more realistic targets.

Having demonstrated and explained as far as we can indoors the matter of trajectory, sight elevations required for different distances, minutes and angles of elevation, wind deflection and doping, and having given to each pupil in the advanced course a card on which is printed or written the angles of elevation for the .22 Long Rifle, and .30-'06 cartridges, let us announce a field morning or afternoon for the advanced class, to assemble at a certain place and time to take a certain street car or bus. We will need only the following equipment: The rifles the students have been using, about fifteen cartridges for each pupil, a stout cord just 25 yards long, as many binoculars or spotting scopes as we can muster, and a couple of gunnysacks filled with the crockery.

Arriving at our extemporized range we line up our smash targets on the ground at 75, 125, and 175 yards, anywhere that they can be seen from the spot we have chosen for the firing line, using the cord to measure the distances. From previous gallery shooting each man knows his 50 foot elevation and zero with the rifle he is to shoot with. His problem is to break his target at each one of those distances with not more than five shots at each distance. From his angle of elevation card he will know just where to set his sight for elevation at each range. He and his coach then estimate the wind, and set the wind-gauge for it. While the pupil is shooting, the coach is observing the target with binoculars or spotting scope. He notes where the bullet strikes the ground if it is a miss, and tells the pupil sometimes to hold off to correct for the next shot, and sometimes to correct for a miss by adjusting his sights. Use both methods.

As many pupils can shoot at one time as there is room for on the firing line and crockery targets laid out on the ground. As soon as a pupil and coach break their targets at one distance, they start shooting at an assigned target at the next longer distance. A score may be kept, based on the number of shots it takes to break the target. The whole shooting for any number of men can be completed in a couple of hours or less.

Each pupil will have learned a number of things—shooting outdoors at various distances, finding the correct elevation for each distance from a known basic 50 foot sight adjustment, use of a table of angles of elevation, aiming at objects differing from the conventional bulls-eye target, getting a steady firing position on ground differing from the smooth gallery floor, doping the wind, and setting the wind gauge. While this pupil was acting as a coach he was also learning how to observe through binoculars and spotting scope, how to pick up the bullet strike, how to see mirage, and to tell a shooter who has missed how to get a hit on his next shot.

On the second field day, to make it more realistic, we can combine the shooting with a scouting problem, the firing line moving forward and coming unexpectedly on a line of targets at an unknown distance and which have to be hit within a time limit, thus introducing the problems of estimate of distance and rapid firing. Perhaps your club or school can arrange to work in close cooperation with the local Minute Man organization, State Guard company, or the guard organization at some war industry plant, to the great benefit of both organizations.

These are suggestions only. Conditions will differ in every club, school, and locality. But by exercising thought, imagination, and energy something of the kind

can always be worked out. Variety will add interest. If there is an arms collection nearby, take your pupils to see it. Clip pictures of various new war weapons from the magazines and place them on your bulletin board. Get the Army Training Regulations on various weapons—Garand rifle, carbine, tommy gun, Browning automatic rifle, Browning machine gun, and explain their workings to the pupils. Plan your advanced course in advance so that each session will offer something of outstanding interest and value. Go on the assumption that next month your pupils may be under fire in a tight place, and try to give them everything you know of or can learn that will help them to come out of it both alive and victorious. Below is the information needed on student cards.

ANGLES OF ELEVATION

.22 Long Rifle (Regular) Cartridge.

Basic Elevation, 50 and 75 feet	0	Minutes
50 yards	3.7	"
75 yards	7.5	"
100 yards	11.7	"
125 yards	15.9	"
150 yards	20.5	"
175 yards	25.2	"
200 yards	30.0	"

4 clicks (quarter minutes) equal 1 minute

My basic 50 or 75 foot gallery elevation with

Rifle No. ..... is ..... minutes

ANGLES OF ELEVATION

.30 cal. MII Cartridge (150 grain bullet, M.V. 2700 f.-s.)

Basic 100 yard elevation	0	Minutes
200 yards	2.5	"
300 yards	5.5	"
400 yards	9.5	"
500 yards	13.5	"
600 yards	18.5	"

My basic 100 (or 200) yard elevation with Rifle No.

..... is ..... minutes

This card belongs to .....

RATIONED SHOOTING

By WALTER F. ROPER

One night a few weeks ago, three local pistol shooting friends dropped in for a chat. It was the first get-together for months because of long hours on war work. None of us had time for visiting to say nothing of shooting. Ed Bridgeman put into words what we all had been thinking when he said: "Personally I think we should find a way to keep the game going. Darned if I know how with so little time available to say nothing of the impossibility of getting more ammunition. Maybe we'd better try muzzle loaders or perhaps archery—but someway we should keep the club going."

As he was talking I remembered a marksmanship test I proposed some years ago to Elliott Jones of Olympic and International Team fame. Elliott and I had discussed ways of creating the pressure of match shooting in practice sessions and I suggested that if a shooter had just one shot and that his first one, he would have to acquire real control to get any kind of a score. Furthermore the necessity of making the first shot a good one develops a mighty practical kind of skill. As Ed was talking I remembered also the trial one-shot match Elliott and I made. We both found it the very toughest kind of shooting, the pressure surely was great and it took us a long time to score anywhere near what we averaged per shot in a ten shot string.

I waited until Ed had finished his oration and then asked how much .22 ammunition we had between us. A checkup showed exactly three boxes! With four of us wanting to shoot during the four cold months of our New England winter, that certainly was not much of a supply. But after a bit of arithmetic I asked if they were game to pool our resources and tackle the hardest kind of competition they had ever tried. All agreed, so I proposed that we shoot the one-shot match twice a week. As a concession because of our lack of practice and jumpy nerves, we decided to allow not over five dry snaps before the counting shot was fired. But the one shot fired was to be always the scoring shot. We agreed that we would get together on Wednesday and Saturday nights, January, 2, 1943, to be our first match night.

That all took place back in November. In January things had changed. Only two of us—Ed Bridgeman and I—were here to carry on our one-shot match, the other boys having gone into the service to do their shooting with something bigger than .22's. Ed and I decided to go ahead anyway, combining our shooting with our weekly talk session. We had our first "shoot" on January 2 and neither of us was particularly proud of our first scores although I had a pretty good idea of what we would get from my former trial. As we get hold of ourselves we will do better and best of all we will be able to do some shooting this winter at least.

I am sure that any pistol man who has done any match shooting will remember how hard it was to get that first shot off—or the last one, especially when a ten was badly needed to give a good total.

This one-shot test will help make those shots easier and certainly the ability to hit with the first shot is a basic requirement for practical shooting. You probably will have to adjust your sights a bit from what you would use to make a ten-shot group average center, especially if you clean the gun after each "match." With all my single-shot pistols I found that the first shot from a clean bore goes quite a bit lower than shots fired after the bore has been warmed and fouled by a few practice shots.

Anyway, there's my contribution to rationed shooting, and if you want to develop ability to "take it" without doing much shooting, give this one-shot test a trial—you'll be surprised!

POWDER SMOKE: READERS COMMENTS THE NEWS DESK

RE-LOADS . . .

DO YOU HAVE THE ANSWER

Editor, AMERICAN RIFLEMAN:

In the Denver area I know quite a number of highly-skilled riflemen. A big part of these fellows received their training at Camp Perry, the rest of us getting a lot secondhand and from study, experience and lots of thoughtful shooting. Yet, with this sort of material available the Army or Navy have not made use of one single man from this area as an instructor to my knowledge. None have been given the least opportunity to help teach our untrained youth who are now going into our armed forces from this great "Nation of Riflemen."

Just the other day I had a long talk with our local International Team member. At present he is head of the testing department of our big local ammunition plant, but he wants to do something more vital. He wants to use his skill to make rifle shots of our "boys in blue." He is deeply hurt that this uncanny skill of his as a rifle shot and coach is being completely ignored. With him are at least a dozen, maybe twenty, other older fellows, all trained and experienced riflemen. But not a single one has even been given an opportunity to serve in the line where he could do the most vital good. Was the founding and financing of Perry just the whim of some cracked brain? Or was the basic idea really and truly to train riflemen that they in turn might train other riflemen? Do you have the answer?

Not so long ago the top offhand shot of the Colorado Rifle Club went into the Service. Is he now coaching in rifle marksmanship? Not on your life. The last we heard he was inspecting something or other. His skill as a teacher of rifle marksmanship is worth nothing to his country in the hour of his country's greatest need; the skill that his country paid for.

Another of the younger members of the same rifle club, now an officer in the Army of your Uncle Sam, has been serving for nearly a year. And has he been used as a coach to give to the untrained inductees that rifle skill that they must have? In a pig's eye he has. To the best of our knowledge he was on the rifle range about twice, and once was when he was ordered to shoot a score because on his first time up the range officers apparently couldn't believe that an officer could use a rifle.

These are just a couple of instances that I happen to know about, yet I am sure there are hundreds more just like them. It seems that everything we do now for the war is done because "that is the way they do in England." It seems to me that the time has come when we better begin to do some of the things because "that is the way they do in Russia." In Russia we find the skilled rifleman the most prized possession of the nation. Russia, the land of its own ideas, the land that may have actually accomplished more in the last twenty or thirty years, when the truth is eventually told, than any other nation on the globe. In Russia, as was once the case in America, the skilled rifleman is the peer of all sportsmen. Russia recognizes the fact that a skilled rifleman is an asset; today Russia knows that her riflemen are her dearest assets. Just why is it that we are not following the example of Russia if we have sunk to that level where we must be led in what we do? Do you have the answer?—*Allyn H. Tedmon, Littleton, Colo.*

NOT A "NEW" TRIGGER

Editor, AMERICAN RIFLEMAN:

Pertaining to an article published in the January, 1943, AMERICAN RIFLEMAN, entitled, "New Trigger for a Pup."

The "New" in this title and article is questionable.

United States Patent number 2,249,232 which I hold, has as claim number one the following:

A trigger mechanism for releasing a cocked element, comprising a sear engageable with the element, a toggle connected with sear for holding the element cocked and having its elbow axis off dead center in the cocked position, a trigger for shifting the elbow axis over dead center to collapse the toggle, and means for adjusting the elbow axis relative to dead center.

Any verification of this statement may be obtained through the United States Patent Office.

In the writing of this article infringement has been admitted. In advising others to make a trigger using this system of trigger mechanism it seems that they would be liable in doing so.

I would appreciate a rectification of this matter, published in THE AMERICAN RIFLEMAN.

In all I have twenty-three claims on toggle-link trigger mechanisms and they cover practically every conceivable method of adapting a toggle-link trigger mechanism to firearms. U. S. Patents 2,249,231 and 2,249,232.

I realize that you can not keep track of all U. S. patents and that the article was written in good faith.—*J. B. Smith, Oakland, Calif.*

The article certainly was written in good faith. Because this type of rifle does deserve a good trigger mechanism, and because you hold patents on a type which we have proven to our own satisfaction is excellent for the purpose, we wonder if you would consider making your trigger available in case others are interested in it. Undoubtedly there will be some demand for the trigger, and we hope that you can see fit to make them available yourself or through someone else.

The local shooter who suggested this type of trigger to the author is certainly fair and honest, and did not know you or anyone else had a patent on this type of trigger. In fact, because we believed in our own minds that it was a new type, is exactly one of the reasons for putting all the work into making one of them. Of course, we could have saved trouble and inconvenience by first checking on trigger patents, which we certainly would have done had we any thought of trying to make any money out of the thing.—ED.

N. R. A. BOARD TO MEET

The annual meeting of the Board of Directors of the National Rifle Association for the election of officers and for the transaction of such other business as may be presented, will be held at the New Statler Hotel, Washington, D. C., Friday, February 5, 1943, at 2:30 p. m.

An informal dinner for the Board and their guests will be held also at the Statler on the same day—8:00 p. m.

As in past years, the Executive Committee will meet at N. R. A. Headquarters on the following morning (February 6) to formulate plans for the forthcoming year. A complete report of the meetings and of the progress of the Association during 1942 will appear in THE AMERICAN RIFLEMAN for March.

A KID WHO KNOWS

Editor, AMERICAN RIFLEMAN:

I am going to try to make this short. You will remember I subscribed for the RIFLEMAN in the name of Frank Morrison, my grandson. This was for a definite purpose.

For twenty-one years I was a law enforcement officer, retired six years ago as a result of injuries incurred in line of duty. Prior to that time, inasmuch as my work took me out of the city an average of about 28 days a month, I frequently could take Frank with me. We had a great time; camping out, target shooting with .30 caliber police rifle, a .32-20 Winchester carbine; six-shooter, automatic, .410, 16 and 12 gauge shotguns. Also, I frequently took the lad to police headquarters where other officers, finding him interested, initiated him into the mysteries of tear gas guns, tommy-guns and assorted police weapons.

Also, during that period, from his 11th year to his present age, 19, he became a sort of "authority" among his kid friends to the extent that he frequently repaired their guns, went shooting with them, in short . . . became a "near expert" on guns of all kinds.

Now the result: Three weeks ago last Friday, that is November 7, he enlisted in the Air Corps and is at present stationed at a Basic Training Center as a gunner's mate. Pretty good for a mere kid, only 19.

With the aid of THE AMERICAN RIFLEMAN, which he read avidly and was able most of the time to "argue me down" and prove it by articles, photographs, etc. in the magazine, all the time acquiring real knowledge, he has an opportunity to go places. I thought you might be as interested in this as I am proud of my grandson.—*Fred B. Fanger, Denver, Colorado.*

DEEP IN A WELL

Editor, AMERICAN RIFLEMAN:

One who is deep down in a well can, they say, see stars in the daytime. Thus it is that one deep down in misfortune can see more than his hurrying healthy brother on the street. I have just put in twelve con-

(*Continued on next page*)

TIMED FIRE
With Bill Shadel

Some more names of fellow shooters now in the service, but first a couple of other items:—

From the President's message to Congress we get this encouraging word about small arms ammunition—for our services, at least. In 1942, "We produced ten and a quarter billion rounds of small arms ammunition, five times greater than our 1941 production and three times greater than our total production in the first World War."

Speaking of Marines, we have to let out our plans for a dedicatory issue of THE RIFLEMAN, next month, to the finest riflemen in the world—the U. S. Marines. To pick up the "feel" of training background, Ye Ed is shoving off for a visit to Marine training centers after finishing off these lines. No, we're not going through the routine, but will talk with many of your friends who are doing the training, for a report to THE RIFLEMAN.

Short of help—well, that's an old cry by this time, but no place could be worse than the Nation's Capital. We're trying desperately:—to keep up with correspondence, to get out your magazine on time, to keep the mailing stencils up to renewals or new subs. We're especially hard hit in the stencil room, acknowledging memberships and getting address plates made, for the peak season. But when we fall down, we hope you'll continue to be good-natured about the whole thing.

Now for the service round-up: Lt. Kenneth Cruse, Coast Artillery, Ft. Travis, Texas, formerly key man in Minnesota's Twin City shooting; Lt. Fred Merrill, just graduated OCS, former Ohio junior gallery champ; Major Perry D. Swindler, Plans and Training Officer, Camp Swift, Texas; Lt. R. G. Patterson, M. P., Ft. Benjamin Harrison, former Northwestern Ohio League secretary; Lt. Col. Lee Herrington, past president of Cleveland Civilian Marksmen's Association, now on General Arnold's Staff, Headquarters Army Air Force; Lt. George Braendle, QMC, Ft. Sill, Oklahoma, just married, incidentally, a former Clevelandite, member of 1938 Dewar team and 1939 "400" Club International; Captain Hugh Richter of Ordnance, Wilmington, Delaware, resident; Major W. E. Hurlbert, in M. P's, Chief Petty Officer R. S. Sutton, Bos'n J. W. Thomas, all of Jacksonville (Fla.), Police; Lt. Ed Schneck, Detroit pistoleer, Army Amphibious Force; Tampa police officer, Specialist first class Frank Wright; Another Tampa shooter always in evidence at the Mid-Winters, Lt. Col. George Leavitt, Ordnance.

A special line for Florence Ingram, Philadelphia pistol NRA expert—now Third Officer, 2nd WAAC Training Center, Daytona Beach, Fla.—and due for a promotion.

Lt. Fred Molt, USNR, gunnery instructor in Naval Aviation, one of our NRA Directors from Asheville, N. C.; Lt. Commander Birkhead MacGowan, Medical Corps, a Baltimore Rifle Club member; Captain Lloyd W. Praedel, QMC at good old Fort Francis E. Warren, Wyoming (wish we could attend another match there). Praedel was on Detroit Police Pistol Team, Marine Corps Rifle and Pistol Team. From Bakersfield, Calif., former club president, now Lt. R. G. Peters, Army Intelligence.

(RE-LOADS, *Cont'd from page 41*)

tinuous years in fighting tuberculosis. In that time I acquired a finer sense of values and thought things out for myself and tried to see, at leisure, the things other people missed. Always an ardent gun lover, the separation from my sport pained me most deeply. Very hesitatingly, when at the bottom of my resources, I wrote to you and asked to get some copies of the RIFLEMAN; the answer was a huge box expressed to me containing plenty of old copies and a letter saying they would send me the RIFLEMAN every month. This kind act put lots of courage in me.

Well I used to read the RIFLEMAN and think of the campaign it carried on to fight blue-nosed agitation; to make people National Defense conscious. Now in wartime we are reaping the benefits of the N.R.A. preparedness in ways which should be perfectly obvious to anyone with a scintilla of intelligence.

NRA BASIC TRAINING PROGRAM

229 Schools Approved

2110 Attendance Certificates

equals

1 Regiment

THE OBJECTIVE IS 27 RIFLE DIVISIONS!

Is Your Club's School Operating Under This Plan?

Anyway, I got back a measure of health after twelve years. What to do? I had no home, few friends. In boxing parlance, they say, "Watch out for the hungry fighter. He, anxious to get the money and food which automatically go with the title, will murder the champ who holds him too lightly or who is softened by easy living." I walked into the Post Office last April and saw a Civil Service ad for examination for clerk in a hospital. I went after that exam, passed in fourth place and here I am as a $52.50 a month (with room and board) clerk. I feel like a millionaire. I want to join the N.R.A. and here is my $3.00. I now get your copies gratis so please cancel that gratis sub and many, many thanks.

I swear that I am not connected with any subversive organization and that I will bear true faith and allegiance to the Constitution, so help me God. It's ironic how times change. Twenty-five years ago, we marched to camp (I was in 102nd Combat Engineers, New York National Guard) amid lines of Communists (not the brave men dying on the Russian steppes; merely the greasy, before June 1941, Bronx and Hollywood variety who exhorted us to refuse to be gunfodder for capitalists (Kepitalists!)

Thanks again for the sub which helped me keep my almost worn-out faith in human nature. Prosperous years to all your staff.—*Denis J. Duhig, Grassland Hospital, Valhalla, New York.*

SOME GOOD TO COME

Editor, AMERICAN RIFLEMAN:

There is in the December issue of the RIFLEMAN a protest by Mr. C. R. Conkling to the article published by *Popular Mechanics* magazine under the title "Sighting in Your Rifle." Mr. Conkling is 100 per cent right—the illustrations and some of the context of the article were 100 per cent wrong.

Some good may come of it in the end, however, for immediately on reading the article I wrote a letter to the magazine, pointing out the harmful nature of the article, and am happy to say that I received an immediate reply thanking me for the friendly criticism and stating that in the very near future there would be another article published, with illustrations, which would be correct in every detail. He further stated that mine was not the only criticism that had been received in regard to the article, which shows that the shooters of the country are on their toes.

Needless to say that we are awaiting this promised article with a great deal of interest. —*E. M. Lunsford, Altadena, Calif.*

PASS THE AMMUNITION

Editor, AMERICAN RIFLEMAN:

"Praise the Lord and pass the Ammunition." Those words have a very vital meaning these days, especially to the backwoodsmen of our northern and mountain states. These men have always depended upon their ".30's" to provide protection for themselves and their stock. The close of this hunting season finds nearly all of them out of ammunition. They can get neither shells nor slugs and have no hopes of getting any in the future. I would, therefore, suggest that the common calibers be manufactured and distributed to the isolated towns at the former price if at all possible.

There are also at least two hundred thousand high powered rifles in the twin cities (Minneapolis and St. Paul) with no ammunition. These would provide a wonderful home defense.—*J. E. Moore, Minneapolis, Minn.*

A BIG HELP

Editor, AMERICAN RIFLEMAN:

Never before has the RIFLEMAN meant so much to me. The articles on foreign arms are especially valuable to us as we'll very likely have to use them at times. Also the kinks on marksmanship and various and sundry subjects may at some time mean the difference between the success of our mission. Here's wishing the Association a prosperous and very successful future. It certainly deserves every citizen's support.—*Robert C. Machen, Lt., 506th Parachute Regt.*

THANKS FROM THE VETERANS

Editor, AMERICAN RIFLEMAN:

Veterans who have been hospitalized in this Facility for the past year desire us to thank you for the complimentary copy of THE AMERICAN RIFLEMAN which has been received at the station library. Numbers of our patients have expressed their pleasure at finding it available and we know they all appreciate your courtesy in sending it.—*J. E. Wheeler, M.D., Acting Manager, Veterans Administration, Memphis, Tenn.*

A GOOD MAN WITH A GUN AT THE RIGHT TIME

A good gun handled by a good man can make a lot of difference—not only in war as already proved, but at home as well. It was just such a combination which ended the venture into crime of August Hage, berserk construction work guard who terrorized northern Idaho last October, killing one person and severely wounding another.

Armed with a .38 caliber revolver, Hage began his crime career by robbing a roadside night club and killing the proprietor's wife. With the proprietor as a hostage he attempted another holdup—unsuccessfully. It was during his flight by car several hours later that Hage's short-lived career was ended.

But Hage first met up with Deputy Sheriff George O'Donnell at the south end of a long highway bridge leading to Sandpoint, Idaho. Sheriff O'Donnell halted him in his car not far from a service station and auto camp owned by 62-year-old N. R. A. Life Member Paul V. Walter. Hage stopped his car, but his answer to the Sheriff's questioning was three slugs into the officer's chest, arm and hand.

The shots were heard in the Walters home by Mrs. Walter who told her husband. Grabbing a favorite .30-'06 sporter given him by Col. Townsend Whelen 15 years ago, Walter rushed outside. He fired one shot which hit Hage in the head, killing him instantly just as the crazed guard was about to fire again at Sheriff O'Donnell.

Walter is a veteran of the Spanish-American War and the Philippine Insurrection, has been a rifleman all his life. He has, in the past, been a contributor to RIFLEMAN columns and is well known in the northwest as an authority on small arms.

Most of all, he is an expert rifleman and had a gun handy to use in that emergency—to save a life and end the budding crime career of a gunman who picked a bad spot for his final act.

Anti-firearms groups please copy!

NEW D. C. M. ADDRESS

Effective immediately correspondence sent to the Executive Officer of the National Board for the Promotion of Rifle Practice or the Office of the Director of Civilian Marksmanship of the War Department should be addressed as follows:

Temporary Building "A",
Room 2-1100
2nd and "T" Sts., S.W.
Washington, D. C.
Col. F. C. Endicott, G.S.C.

POST OFFICE RESTRICTS OVERSEAS MAILINGS

A notice just received from the Post Office advises of new restrictions incident to the mailing of individual copies of newspapers and magazines to *Army personnel overseas.* The order (P. O. D. No. 19687) became effective January 15, 1943; it is necessary because of heavy demands on cargo space for military shipments.

According to the notice, we as publishers of THE AMERICAN RIFLEMAN may continue to send THE RIFLEMAN to Army subscribers overseas on unexpired subscriptions. No one other than the publisher is now permitted to mail magazines to soldiers overseas.

We cannot extend expired subscription unless the renewal is requested in writing by the addressee.

Many of our members in the Armed Services have told us that THE RIFLEMAN is helpful to them as well as entertaining. Some have instructed us to mail their copies "home" to insure prompt forwarding by relatives. Note that relatives can no longer forward magazines. Soldiers who wish the magazine mailed directly to their A. P. O. address should notify the Association immediately stating the present mailing address and the new A. P. O. address.

This order applies only to Army personnel serving overseas. It "—does not apply to mail for the personnel of the Coast Guard, Marine Corps or Navy."

Showing "boots" how to handle a rifle is the job of these men, many of them familiar in the shooting world, at Sachuest Point Rifle Range, U. S. Naval Training Station, Newport, Rhode Island, working under Lieut. Commander Thurman Randle, N.R.A. Vice-President. Front row, left to right: Lieut. J. B. Connolly (Calif.); Lieut. M. A. Greathouse (Texas); Lieut. Commander Randle (Texas); Lieut. R. B. Whitaker (Okla.); Lieut. H. A. Danforth (Mass). Back row: Lieut. (jg) J. N. Danner, Jr. (Ill.); Bos'n F. A. Kent (N. J.); Bos'n L. G. Jeffrey, Jr. (Calif.); Bos'n J. C. Berger (Okla.); Bos'n G. A. Selkirk (N. Y.); Bos'n V. L. Massie (Calif); Bos'n J. E. Lacy (Conn.); Lieut. (jg) E. R. Farren (Texas). They know their stuff.

C. E. Howard

On December 11, 1942, Colorado and the Nation lost one of the most unassuming top-flight riflemen of our time. Ed Howard of Rand, North Park, Colorado, is now in the Ever - Green - Grass - Country hunting with Charles W. Rowland, Dr. Mann, Charles Newton, Tim Murphy, Davey Crockett and the rest of our truly great riflemen.

Ed was a true westerner in every sense. Born at Ottawa, Kansas, January 1, 1877, he took to the trail over yonder from the home of his dearest pal and friend, Dr. Fred H. Carpenter in Denver. For those of us who were born in the West and knew the real West, his passing takes from us just one more of the living symbols of the West as the Indians knew it, and left it. Ed has lived in Colorado since 1882, was a Life Member of the National Rifle Association, and is survived by his wife, Mrs. Effa Howard, two sons, Elmer and Roy, and a brother, Hiram.

Raising cattle was his way of making a living, but as Mrs. Howard recently said, "In reality his cattle affairs were very secondary to his rifle shooting." His one ambition was to develop and load a rifle that would put all bullets into one hole. He talked, thought, dreamed and did rifle shooting, plus a great deal of experimental loading and shooting back in the years when high velocity rifles were just being dreamed about. He did much of the field test shooting for Newton that proved to the riflemen of the Nation what those first Newton creations would do. Living in a rifleman's paradise he killed hundreds of coyotes, many, many deer and elk, and as he once remarked, "a wagon load of small stuff with the rifle." He was a superb offhand shot, probably has or had few equals, and shooting a rifle offhand was the most serious thing he could do. His hobby has always been small bore rifles and his two favorites were the .22 Swift and the .270 Winchester.

In October he made the last hunt in company with Dr. Carpenter, his wife and boys, and a friend or two. "The best hunt we ever took," he said, and he shot his last bull with the .270. He was the pioneer hunter-rifleman to use telescopes and nothing else on his rifles in the field or at the range. When told last summer that he was in a bad way and that he must slow down, he told his wife, "If I must lie and stare at the ceiling for six years to live, I'll keep going and die in six months. And he did.—*Allyn H. Tedmon, Littleton, Colorado.*

Mark J. Patterson

On December 14, Mark J. Patterson, my good friend, expert rifleman, scientist and N.R.A. Member, passed away. He was a remarkable man, a graduate of Worcester Polytechnic Institute and a famous builder of bridges, railroads and buildings in the early days of the great West.

In his study of, and experiments with rifles his keen, trained, scientific mind and remarkable ability as a mathematician enabled him to work out the solutions to problems that have been mysteries to most of us shooters.

Always ready to help those in need, always cordial, he will be missed by all who knew him, but by none more than his assistant in his rifle studies, and companion on duck hunts.—*Walter Roper, Longmeadow, Mass.*

BOOKS AND MANUALS

MANUALS—For Better Training

Basic Small Arms Instruction	$.25
The ABC of Practical Pistol Instruction	.25
The ABC of Practical Riot Gun Instruction	.25
Practical Home Guard Organization	.25
Practical Organization of Industrial Plant Defense	.25
ABC of Pistol Shooting (advanced pistol)	.25
From Tyro to Master (advanced small-bore and gallery)	.25

BOOKS—To Interest All Shooters

Automatic Arms—Johnson-Haven	$5.00
Automatic Pistol Marksmanship—Reichenbach	1.50
Big Game Hunting and Marksmanship—Lee	2.00
Big Game Rifles and Cartridges—Keith	1.50
Book of the Springfield—Crossman	4.00
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NATIONAL RIFLE ASSOCIATION

SCOTT CIRCLE **WASHINGTON, D. C.**

Frank Wood

Frank Wood, a member of the Vergennes (Vt.) Rifle and Pistol Club since its founding in 1932, passed away suddenly at his place of business Friday morning, December 4. Death was very sudden and a shock to all members of the club for he had attended the regular meeting, took part in the shooting the Wednesday night preceding his death and seemed in very good spirits. He was the spark of the club and was looking forward to the winter competition.

Mr. Wood had only one avocation, shooting, to which he gave all his recreational and spare hours. He was an excellent shot with the pistol as well as the rifle. The boys of the Club are going to miss him.—*John C. Hyland, Vergennes, Vt.*

RIFLEMAN AWARDED SILVER STAR

The monthly bulletin of the Arlington (Mass.) Rifle Club is dedicated this month to Lt. Walter J. Burns for a fairly obvious reason. To quote from the Bulletin:

"One of our members, Lt. Walter J. Burns, known to many of you as Burnsie, has been decorated by our Government with the Silver Star for exceptional bravery in action and for service beyond the call of duty. Lt. Burns is now resting in a hospital somewhere in Northern Africa. He crossed the pond a short time ago and took a very active part in the invasion. The boatswain's mate handling the landing barge was killed by machine gun fire. Lt. Burns, under heavy machine gun fire, jumped in and filled his place. He brought the barge safely in saving the lives of his men. He did, however, receive machine gun wounds in both legs. Hats off to Burnsie and let's all hope for his speedy recovery."

COMING EVENTS

Charlotte, N. C., February 15-20—Small Arms Firing School and Third Annual Gallery Tournament:

School Classes—Monday through Friday, 7:30 to 10:00 p. m.

Tournament and Qualification Firing—Saturday, 8:00 a. m. to 10:00 p. m.

Sponsored by the Charlotte Rifle and Pistol Club, James B. Rogers, Executive Officer, 2105 Chesterfield Avenue, Charlotte, N. C.

Ohio, March 1-31—Sectional Ohio Small-bore Rifle Gallery Championship Tournaments:

Sponsored by the Ohio Rifle and Pistol Association. For programs write C. I. Greer, P. O. Box 123, Barberton, Ohio.

STOLEN GUNS

Hi-Standard .22 caliber Model E automatic target pistol, Serial No. 45816. Stolen from workshop of B. S. Bacon, 98 North Spring Garden Avenue, Nutley, N. J., December 27, 1942. Communicate any information to Mr. Bacon.

Two .22 caliber Ace long rifle Colt automatic pistols, Serial Nos. 258 and 294, disappeared from the U. S. S. Moffett. Any information which would help the U. S. Navy recover these weapons should be communicated to Lieutenant-Commander J. C. Sowell, U. S. Navy, Commanding U. S. S. Moffett, % Fleet Post Office, New York, N. Y.

DOPE BAG ☆ ☆ ☆ Conducted by F. C. NESS

THIS MONTH:

The .375 H. & H. Magnum · British and American Loads · Handloads · Brenneke 9.3 X 64-mm. · Krippner's Results · The .38-55 · Sporting and Target Loads · Layne Methods And Groups · The .38-56 · Another Super .30 · The .300 MVF Effect · A Tail Wad · Lead Balls · Trade Dope.

.375 H. & H. Magnum. Our next jump is to the big belted load which Holland & Holland developed in rimless form for magazine bolt-action rifles. It was loaded with 58, 61 and 62 grains of Cordite, respectively, behind 300-grain, 270-grain and 235-grain bullets. In a 28-inch barrel the respective muzzle velocities for these three bullet weights were: 2500, 2650 and 2800 f.-s. The remaining velocities at 100 yards were, respectively, 2253, 2415 and 2535 f.-s. For other rifles there was also the .375 H. & H. Flanged or rimmed cartridge loaded with the same bullets and powder, the charges being reduced to 56, 59 and 60 grains Cordite, respectively. The resultant lower muzzle velocities from the same length of barrel were: 2425, 2600 and 2750 f.-s.

The .375 H. & H. Magnum in its belted rimless form is also loaded by the Western-Winchester combine for their Model-70 Winchester bolt-action made in this caliber for our biggest American game. It is a heavy-barrel sporter which gives the impression of deadliness when examined at close range and particularly when handled. It is not particularly uncomfortable in recoil even when fired from portable bench rest, we found. We rather liked the brute, and would prefer it to the .300 Magnum in big-game country.

We tried the standard M-70 Winchester with W.R.A. 300-grain S.P. loads with peep and bead sights. At 100 yards our 5-shot groups ran: 3.53, 2.68, 3.67 and 1.94 inches. At 200 yards they ran 4.30 and 5.72 inches. The latter had 4 shots in 3.42 inches. The bigger groups at 100 yards had single fliers without which the average accuracy was reduced to 1.43 inches; the mean maximum spread being 2.96 inches. In view of the sporting peep and bead sights, we thought our results indicated fine accuracy.

The Western Cartridge Company are the first American makers and their ballistic dope gives the 235-grain O.P. bullet 2870 f.-s. m.v. with 2516 f.-s. at 100 yards. The drop is less than 2½ inches and less than a foot over 200 yards. It is practically 28½ inches over 300 yards. The 270-grain S.P. bullet has 2720 f.-s. m.v. with 2460 f.-s. remaining at 100 yards and a bullet drop of about 2½ inches. It also is less than a foot over 200 yards, and less than 29 inches over 300 yards. The 300-grain S.P. has 2563 f.-s. at the muzzle and 2238 f.-s. at 100 yards, where the drop is 3 inches. The 200-yard drop is about 14 inches. It is just over a yard at 300 yards.

There are a number of lead-alloy bullets for the .38-55 which can be used in the .375 Magnum, and they range in weight from 135 grains to 330 grains. There is one Ideal plain-base bullet which is sharply pointed and made in different weights ranging from 116 to 267 grains. This is No. 37585. There is a 278-grain gas-check bullet, Ideal No. 375449, which can be given 1650 f.-s. in the .375 Magnum with 30 grains of No. 80, or equivalent loads. The only load reported with Ideal bullets concerned a mould which was new in 1940. No design number or weight was given but it probably was the standard weight for the .38-55, or about 255 grains. Dr. R. W. Kelly used 19 grains of No. 4227 with it in his .375 Magnum and got 1½-inch groups at 100 yards.

Many years ago I loaded some reduced loads with a B. & M. lead-alloy bullet for a .375-Magnum shooter. When the shooter returned from Africa, he reported excellent results in getting camp meat with these light loads. This indicated the adaptability of the big case. I do not remember what components or load I used. David Drew tried 15, 20 and 25 grains of Unique with the .38-55 255-grain S.P. bullet which miked .3765 inch. He also used 54 grains of HiVel No. 2 behind this bullet in his .375 Magnum.

I have never loaded full-power loads for this caliber and must rely on the experience of friend Drew. He tried 58 to 65 grains of HiVel No. 2 behind the 235-grain standard bullet and found the lighter load to be accurate and pleasant to shoot. Behind the 270-grain bullet he used 55 to 60 grains and said the same about the lighter load. The heavier of these two was his standard hunting load, and he said it was very powerful. He used 55 grains with the 300-grain bullet as the very best for it. David Drew lives in Alaska.

In 1937 he obtained some laboratory dope on .357 Magnum loads with I.M.R. powders. These loads were based on No. 4064 and 8½G primers. Drew also used No. 9½ and No. 120 primers and found the suggested loads to be accurate near the upper levels given. These loads were as follows: 235-grain bullet (3.50 inches over-all length) and 57 grains (2300 f.-s.) to 71 grains (2810 f.-s.); the 270-grain bullet, 57 grains (2220 f.-s.) to 69 grains (2690 f.-s.) and the 300-grain bullet, 56 grains (2160 f.-s.) to 63 grains (2450 f.-s.). The two heavier bullets were seated to make a cartridge over-all length of 3.60 inches.

Except for bullet size, the .300 H. & H. Magnum and .375 H. & H. Magnum cases are practically the same. In this big case friend Drew had his best accuracy above the 45,000-pound pressure level. He said the .375 properly loaded was as accurate as any fine Springfield. Several times he and others had 5-shot groups in 4½ inches at 300 yards. He called it about equal to the .300 Magnum on the target at 200 yards, and a better long-range moose gun. His moose load was 60 grains of HiVel No. 2 behind the 270-grain bullet, and it gave the fine long-range accuracy mentioned above. In the fall of 1940 his brother killed a moose in his tracks at 300 yards. It was a broad-side shot on a big one with a 66-inch spread. The bullet went through the thickest part of the neck with ease and was heard to ricochet beyond. On the same kind of hit with the 180-grain from the .300 Magnum another moose-neck stopped the bullet. David Drew, himself, killed three moose with 4 shots using the .375 Magnum and he said one of them was superfluous.

Mr. Konig compared the American and English ballistic data for the .375 H. & H. Magnum as follows:

American

Bullet	*235-gr.*	*270-gr.*	*300-gr.*
M. V.	2860	2720	2540
100 yds.	2520	2460	2290

British

M. V.	2800	2650	2500
100 yds. ...	2510	2430	2300

9.3 X 64-mm.

Bullet	*257-gr.*	*302-gr.*
M. V.	2785	2523
100 yds. ...	2575	2343

He went on to say the Brenneke 9.3 X 64-mm. was practically a duplication of the .35 Newton in length, in shoulder (.5 Newton and .473 Brenneke), in head diameter (.525 and .505, respectively) and in powder capacity (80 grains and 77 grains).

For the Brenneke double-cored 302-grain bullet with gilding metal jacket, Mr. Konig worked out some further ballistics for his 9.3 X 64-mm. using the m. v. of the curtailed tropical load of 74 grains German powder. Rifle weight was 8¾ pounds with 25¾-inch barrel. The m. v. was established by Mr. Merton A. Robinson, ballistic engineer of Winchester. This was 2523 f.-s. as given in the table above. Mr. Konig's calculations follow:

	Angle	*Time*	*Velocity*
100 yds.	2.68	.1236	2343
200 yds.	5.81	.2571	2164
300 yds.	9.25	.3996	1990

This load develops the tremendous muzzle energy of 4265 ft.-lbs. The trajectories worked out by Konig were: 3.25 inches high at 100 yards, 2 inches high at 200 yards and 6.75 inches low at 300 yards. He used a "C" value of .300 and believed it might go as high as .310. I gave this tapered tail bullet a different coefficient which increased the 100-yard angle to 2.77 minutes against the 2.68 minutes in Mr. Konig's table. Another reason for the 74-grain charge is that maximum loads would give too much recoil.

With the 257-grain bullet loaded to the same cartridge length the equivalent charge would be 71 grains at 2800 f.-s. m. v. with moderate recoil and pressures. This load was very successfully used by a Brenneke customer in the Carpathian Mountains of Roumania, where several heads of big game were killed at 300 meters. Big game there consists of Eastern red deer, a medium elk, wild boar up to 600 pounds and a European brown bear a little smaller than the American grizzly. At the time of this report, Brenneke was bringing out a 8 X 66-mm. with 186-grain bullets at 3280 f.-s. and 224-grain bullets at 2950 f.-s. There was already out a new 8 X 68-mm. by R. W. S. which required the long clumsy Magnum-Mauser action.

Another kind of big-game rifle is the 7 X 64-mm. Brenneke used by Bill Krippner in his last few annual hunts in British Columbia. This one drives a 177-grain bullet of special Brenneke design, 1 7/16 inches long, at fully 2900 f.-s. Bill measures the range of every kill with poles and piano wire, leaving nothing to guesswork. His shortest kill with that bullet was a 14-point elk at 80 yards. It went through the shoulders and is probably still going, because it did the same thing, at long range, on four grizzlies, with one exception. In only that one centered shoulder it stayed inside the grizzly until skinned. It was the only bullet recovered in 15 head of big game. I have seen his trophies, and Bill has some splendid ones as well as some fine movie records of his yearly trips. Bill is a conservationist at heart. He used only five bullets on those four grizzlies and that was unusually extravagant for him and his precise work in the game fields. I'll wager he uses fewer bullets per trophy than any other successful big-game hunter. I will not mention the extreme measured distances over which he compiled this record, as we still hope to have him tell it himself in an AMERICAN RIFLEMAN story.

* * *

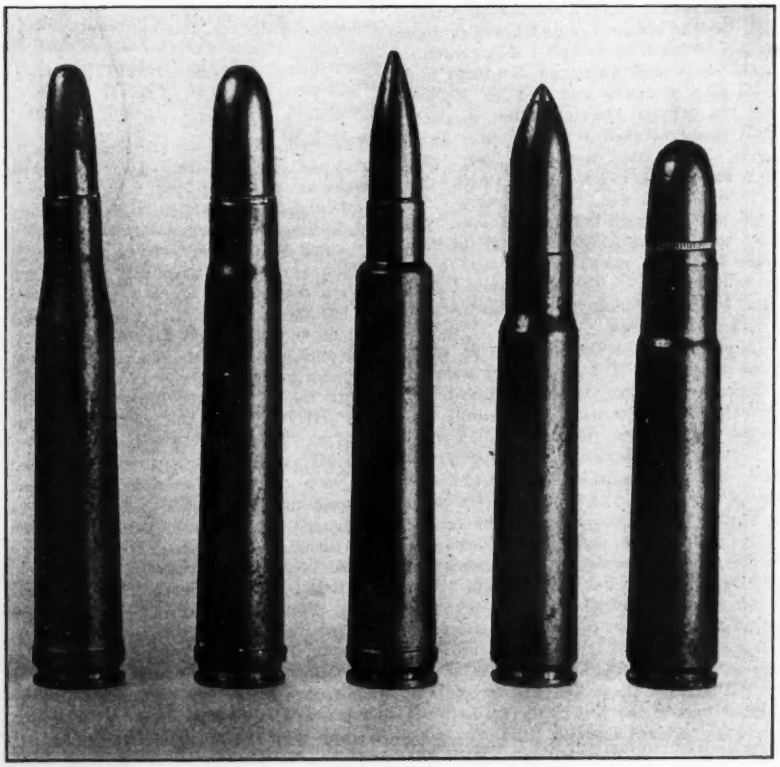
.38-55. The first time I met this cartridge it was used in heavy-barrel S.-S. rifles in our turkey matches. This caliber seemed next to the popular .32-40 in general favor, for its fine accuracy. Then I met it repeatedly in lever-action repeaters, carried by deer hunters. In Texas, in Maine or in Minnesota they all liked it as a dependable deer slayer. The rifles were Marlins or Winchesters, and even the Savage make and the Remington-Lee were represented.

It is a straight rimmed case with 255-grain lead or S. P. bullet. The standard m. v. is 1320 f.-s. with 1150 f.-s. remaining at 100 yards. It drops a foot over that distance and 54 inches over 200 yards. The midrange trajectory is high enough to miss a deer except at shorter ranges, the 100-yard trajectory being only three inches. That is a very ordinary load on the low side of the .30-30 category, but it seems to kill deer well enough in short-range country. Usually the high-power load is used with the S. P. bullet. Its m. v. is 1600 f.-s.

As a target rifle on a falling-block action the .38-55 is far more interesting. The most thorough recent experience with one of these rifles was had by V. E. Layne of Halfway, Oregon, who bought one at the tail end of 1940. Beginning at this point I will let him take the floor:

"I made a most fortunate purchase of a huge and perfect rifle. It is a Pope barrel, Winchester-Schuetzen, in .38-55 caliber. The barrel is a No. 4 octagon, .378" in the grooves, rifled with the usual Pope 8-groove system. The chamber is standard, but ahead of the chamber for about 5/8" is a straight cylinder .384" in diameter. Ahead of this is a conventional throat. With this system breech-seated bullets may be used or by seating the conventional bullet out, so that only about 3/16" of the base band is in the case, a standard bullet may also be used.

LEFT TO RIGHT: .300 H. & H. MAGNUM, 220-GRAIN BULLET; 375 MAGNUM, 300-GRAIN; .300 MILLER-MAGNUM (NOT HIS LATEST .30 MVF MAGNUM) WITH 172-GRAIN BULLET; BRENNEKE 9.3 X 64-MM. MAUSER, 302-GRAIN; .400 NIEDNER, 300-GRAIN BULLET.



"This barrel was recut from an original .32-40 by Pope. The gun had never been used since the alteration. The inside has the usual Pope mirror finish, and the outside of the gun is perfect in every respect, the action being the high-side, blued-receiver type. The ignition and set triggers have the usual Pope tune up. A very fast hammerfall and a light action to cock the rear trigger and a very light pull-off on the front trigger.

"The palm rest is a peculiar fork-shaped affair with walnut knobs matching the stock and fore-end in grain. The wood in the stock and fore-end and palm-rest knobs is the most beautiful I have ever seen on a gun. The finish is perfect and the grain is burled and mottled much like the wood in the expensive models of the best Kay-Woodie briar pipes.

"When Spring comes I will give this rifle a good tryout and have hope of making it perform as I know it should. To this end I have purchased 30 pounds of No. 80 powder (now obsolete), a fine mould and Ideal dies, so I am all set for the tryout. At a later date I will let you know how it works out and send groups if they are good. [These were received, admired, measured and reported at the end of this article. See final paragraph.—F. C. N.]

"These old guns are both useful and beautiful. Our modern guns are at a high state of development. I don't see how they could be much better as they shoot as well as a human being can hold. Still, for a bench rest gun, they have a short barrel life. In one season of shooting, the way I do, I find that the gilt-edge accuracy of the best jacketed-bullet jobs begins to show a slight falling off.

"As to my Winchester-Bremer .32-40 Schuetzen and my Winchester-Pope .38-55 Schuetzen, both are shooting very finely now. I make possibles with both every time I use them. As I told you, both of these are brand new and perfect and should be in some big museum instead of in my gun cabinets. However I am thankful they are not.

"In the .32-40 I am still using the Ideal bullet No. 321232, sized to .324" and cast hard; tin 7%, antimony 5%, lead 88%. Alloys can vary toward the hard side but must not be much softer. In shaking the cases to arrange the powder in the best position, I find in a general way that bulky powders should lay along the bottom of the case, but dense powder should be directly against the bullet base. One thing which seems to be important in both calibers is to have the case necks of such a size on the inside that the bullet is just a snug push fit with the fingers, so they can be started in and let closing-the-action do the rest of the seating. I had to borrow a reamer from Vickery to inside-ream the .38-55 cases of Remington make, but some Western cases were just right as they were.

"In the .38-55 I use the old Ideal sharp-pointed bullet, No. 37585, sized to .380" for the Pope barrel, cast of the same hard alloy as for the .32-40 mentioned previously. I use the B & M measure, and the two best loads so far tried have been as follows: B & M measure setting at 8½ with Unique powder (shaken under bullet) or with the measure set at 16 with No. 80 powder (along bottom of case). I used R. A. No. 9½ primers and Ideal bullet lubricant.

"Both of the above shoot like Hell, make possibles all the time, and no fliers. I made

a test group with the Unique load of 50 shots. The whole group was just 2" on centers. Not bad, I think. They are pleasant to shoot and don't heat the barrel up enough to cause much heat-wave trouble with a scope. With the .38-55 one has to be careful to place the butt of the rifle just at the juncture of the biceps muscle and the heavy top shoulder muscle of the arm. Unless care is taken here the rifle will recoil in a twist and give a shot at 3 or 9 o'clock. This will usually be a close 9 but enough to spoil a group and make a man swear.

"I do not weigh bullets for either gun as, on the whole, I do not think this is a very practical scheme. After all, we cannot hope to equal Pope's and Rowland's shooting anyway, so if we can stay in the 10-ring most of the time it will have to be good enough. This is really very fine accuracy, after all.

"I found that by using the old sharp-pointed Ideal bullet, No. 37585, cast of the same hard alloy as we both used in our .32-40 experiments, that fine accuracy could easily be obtained. My methods in this case were the same as with the .32-40. That is, bullets seated in the case with the fingers and powder directly under the bullet base. I had to ream the case necks with an adjustable reamer to get uniform conditions.

"It now seems to me that in those old wheezers there are only two powders which will give uniformly fine accuracy, same being No. 80 and MX shotgun. In the .38-55 I used 16 grains of No. 80 and 10 grains of MX. I shot 20-shot groups and measured from centers of outside shot holes. The season was advancing and weather unsettled, so I had to hurry. I found that the 20-shot groups could be depended upon to measure a neat 2", or a bit less. Many of the first 5 shots of each string would be in almost one hole. One tires some in a 20-shot string. A slight change in position is, of course, fatal, the same as with most of those old heavy rifles. I inclose a typical 20-shot group, the two low shots were the result of my tiring and hunching forward against the bench, thus ducking the muzzle down a bit. [This is the biggest group mentioned in the final paragraph.—F. C. N.]

"Here is the dope on the loading technique:

"Bullet: the old sharp-pointed Ideal No. 37585, cast extra large to be sized .380" to fit the barrel, and cast hard from an alloy of antimony 10%, tin 10% and pure pig lead 80%. Lubricated with Ideal lubricant, also the Stewart-Valentine 2x2 lubricant for hot days.

"Cases: Western make. I fired them once with a breech-seated bullet, then pushed them in a special die and, while in that position, reamed the necks out with a fluted reamer to exactly the size that a .380" bullet could be pushed into snugly with the fingers. I gauged the flash holes and made them all uniform but had to enlarge them just a fraction to do that.

"Primers: Remington No. 9½.

"Powders: The only powders worth a damn in these old wheezers are, first and slightly best, duPont MX shotgun and, next, No. 80.

"Using the B & M powder measure, I found the best charges were had with the measure set at 10½ for the MX shotgun and on 16 for the No. 80.

"In both loads the powder is placed directly back of the bullet-base by inverting the cartridge, bullet-end down as it is placed in the rifle chamber. Closing the lever seats the bullet the same depth each time as the bullet is pushed down in the reamed case neck.

"With the MX charge I find that the first shot in each string always lands about 1½ inches high, so when I shoot possibles or tight groups I always have a practice bulls-eye alongside to fire these warm-up shots on; one shot or, if a cool day, two shots.

"With the No. 80 charge, the first shot out of a cold barrel goes right on the point of aim. With the No. 80 load the velocity is higher than with the MX load, and the recoil is greater, and it is necessary to hold the butt plate out on the biceps of the arm in exactly the same place and to hold the rifle so that it recoils straight back. As, if the cheek or face presses against the light support of the hand too much or anything else is not right, the gun comes back in a twist, and one will get a shot off to one side which can be very puzzling to anyone who does not know the reason is really a non-uniform holding position and not a defect in the load.

"Now as to the accuracy of this fine old Pope job, I find that it will shoot into the 10-ring of the Small Bore target at 100 yards all day, with never a flier or those disgusting low shots that are so disheartening with cast bullet loads. It will easily average 1½" groups at that range all the time, if the shooter does his part and *remembers to hold the gun in the same position for each shot.* I have made several groups of 10 shots that made just a ragged hole out of the X-ring.

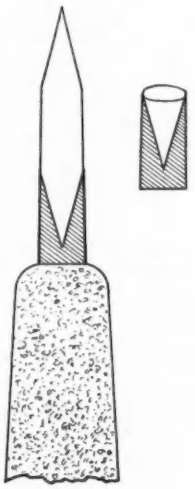
"As to the effect of wind on those big sharp-pointed bullets, . . . well, any wind that a shooter could hold steadily in does not have any effect at all. Even a hard wind-squall does not blow them over more than half an inch.

"In summing up the .38-55 in comparison with other guns, I would say it is less temperamental than the .32-40 with equal or better accuracy. It is much more accurate, day to day under varied conditions, than the finest .22 long rifle ammunition in the finest match rifles. As against the big center fires, such as the .300 Mag. and .30-'06, it is more pleasant to shoot for an afternoon of good fun. As against the .22-3000s and Varminters, I would say it is not quite as accurate and really has to take second place."

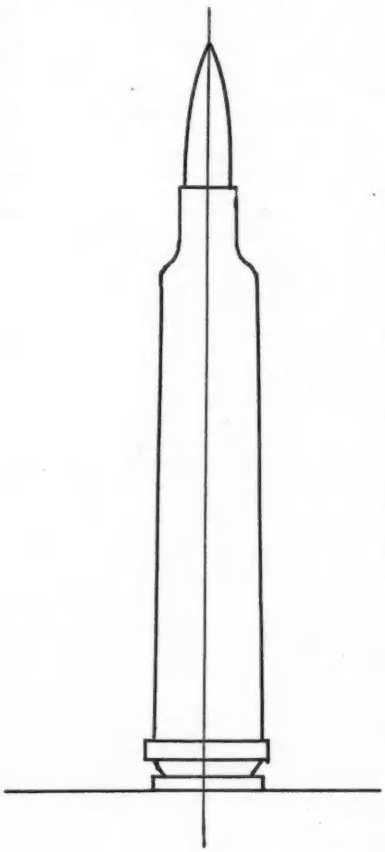
I have some of V. E. Layne's targets. The first 20-shot group at 100 yards measures less than 2 inches extreme spread, and this is the biggest of the lot. In his latest correspondence he reported 110 straight tens with the .32-40, also a 9-X possible with the .38-55 which measured 1 inch, and also a 10-X possible. A series of .32-40 groups, with different loads, measure as follows: 1⅛, ⅞, 1, ⅝, and 1 5/16 inches, all fired at 100 yards.

.38–56. This was a fatter bottle-neck cartridge, also rimmed, for the Marlin and Winchester repeating rifles and also for S.-S. rifles. This one has an m. v. of 1400 f.-s. against 1600 f.-s. for the .38-55 high-power load with the same bullet. There was also a much longer, and nearly straight, rimmed .38-72 cartridge for Winchester 1886 and 1895 repeating rifles. The .40-82 Winchester was in this same family for the Model-1886 rifle.

CYLINDRICAL BASE WAD FOR STREAMLINED BULLETS, MADE OF PRESSED PAPER, FIBER OR PLASTIC



BELOW: .30-CALIBER SUPER MAGNUM ON A BELTED CASE 92-MM LONG, WITH 180-GRAIN BULLET



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Another Super .30. Fred F. Wells of Butte, Montana, has reported some fine results with a super-duper .30-caliber wild-cat made by an acquaintance. It is on a Magnum-Mauser action imported from Germany back in 1936 and in Bull-Pup type equipped with an 8X Zeiss scope. Mr. Wells said he has made several groups with it all under 2 inches at 300 yards.

It is a belted case semi-Venturiied with more abrupt shoulders than Miller's ideal uses and very little body taper. The overall is 3⅝ inches with ⅝-inch across the base, tapered to 9/16 inch. Since he likens it to the .300 H. & H. Magnum, it is probably that, or some German case I mentioned in a recent Dope Bag. The load is 105 grains of No. 4064 behind a 180-grain bullet. The breech pressure is on the high side, but the recoil is called "not too bad" because it is a heavy gun with a 40-inch barrel which measures 1⅜ inches at the breech and tapers to 1⅛ inches at the muzzle. It has one turn in 10 inches of rifling and is free-bored much like the Miller-Magnum. See the cut on page 47.

After shooting it in at 100 yards Mr. Wells reported the following drop figures: 200 yards, 1½ inches; 300 yards, 2½ inches; 400 yards, 10 inches; 500 yards, 24 inches. I have no other dope on this for checking.

On game, Mr. Wells calls it "the answer to a sportsman's prayer," as it neatly kills everything within range, from coyotes to elk. Last fall two deer and two elk were completely perforated with dollar-size holes with it.

Mr. Wells says they are now necking down the .50-caliber machine gun cartridge to take .30-caliber bullets as several other experimenters are doing. Some years ago one such experiment resulted in a chronographed limit of 4500 f.-s. with .30-caliber bullets. Mr. Wells welcomes correspondence and gives his street address as 399 S. Arizona.

* * *

Streamline Bullets. In remarking about the braking effect of the base vacuum on high-velocity bullets, Harry Dean said this drag might be eliminated by filling the void with gas as in firing tracers or with a concaved airfoil tail. An example of such a tail would be the ogee nose of the Albree needle-point shown in the January Dope Bog. Another would be a gas envelope or sheath around the entire bullet with the fluid film emitted at the nose of the projectile. Unfortunately, none of these expedients is really adaptable for practical employment. But there are other ways and means, of course.

E. D. Vissing of Idaho Falls, Idaho, solved this problem for himself by using a paper gas seal for his streamlined bullet, designed to put a cylinder section and a flat base on the pointed tail. It is a simple press job of tough paper which helps to guide the bullet through the bore like a shotgun wad after which it falls to the ground. See page 47.

Since plastic bullets have been successfully used at short range for .30-'06 practice-firing and for training, heat-resistant plastics could probably be used for these gas seals. Vissing suggests fiber or paper impregnated with lubricants of high-melting-point which would make it a lubricating base wad as well as a gas seal. He has tried it, so far, in the .22 Hornet with good results as to pressure-and-velocity relationship and as to stabilizing the flight of these long streamlined bullets even in the slower twists of rifling. For total length and bearing diameter, chamber and bore pressures are lower than for equivalent conventional flat-base bullets.

* * *

.300 MVF Magnum. E. Baden Powell reports killing a 750-pound mare at 100 feet, with 85 grains of No. 4350 and a cavity-point M1 bullet from his .300 Miller-Venturiied-Freebored Magnum rifle, on the standard-grade M-70 Winchester action. The center of the right shoulder blade was struck broadside. Entrance hole was small through the skin, but 2 inches through shoulder and ribs on both sides. Lungs were completely collapsed, the heart was severed, and the cavity was drained and well-dehydrated. All reflex movements ceased after 15 seconds and the telltale death glaze was evident in less than 60 seconds.

A second shot, with 75 grains No. 4350 and the 220-grain Core-Lokt bullet, was directed against the rear leg of the carcass, just below the hip joint. This was at the same range and gave twice as much bone destruction and penetration as the first load. Again there was a small entrance hole through the skin, but a 4-inch hole through the hind quarter, severing the 4-inch thigh bone, shattering the pelvis and rear spine and smashing into the opposite pelvis and hip joint.

The loads used were from 5 to 10 grains under maximum, purposely so underloaded to give the effect of full-power loads at normal range, or about 150 yards average. The time and effect of the first load equalled those previously observed in shooting mustangs at 100 yards with the S.P. 220-grain .30-'06 bullet. The tissue destruction of the second load, at 3000 f.-s. striking velocity, was noted to be 50% greater.

* * *

Lead Ball on Deer. Miller Bedford, the medicine man of London, Ohio, says Elmer Keith's remarks on the killing effects of the .333 O'Neil fitted perfectly his own results on deer with a .54-caliber ball driven by 60 grains of black powder from his muzzle-loader. It went through lungs, ribs and the entire deer leaving small holes, but a good trail. The galloping buck was dead in two jumps.

Bedford warns about likening .50-caliber round ball to the .50-caliber machine gun bullet. He says the .40-caliber ball is about the size and shape of a healthy pea and the .50-size is not much bigger. I might add that the .410-bore rifle-slug weighs only 93 grains and is pretty picayune for game shooting. Rifled slugs and "punkin balls" from the bigger gauges are heavier, have broader beams and deliver greater destructive effect. Even over reasonable ranges the rifled slug does not always bring home the venison. Two failures were reported from New York last year. On the other hand, no solid bullet kills better than a fairly heavy lead-alloy gas-check from a .30-caliber rifle at velocities around 1900 f.-s. m.v. It kills well because it is of lead too, but longer than the round ball. Bedford says the ball must be .50 or larger for deer and .70 or larger for heavier game. The .30-caliber ball just equals the .22 short and the .40 ball is a "pea-shooter."

* * *

Primer Warning. Having over 50 years of experience in gun shooting and reloading, I want to say one thing in regard to primers. Some of the old-type U.M.C. No. 33 and No. 5, Winchester New No. 4, for shotgun shells, and perhaps some others, can not be used today, as the new shells use larger primers on account of their noncorrosive nature.—F. A. Flaugher.

TRADE DOPE

Firearms Collection of the U. S. Cartridge Co. is being sold by Robbins H. Ritter, 508 Forbes St., East Hartford, Conn. From that address, for two bits, can be had a 28-page price list. It is the 9 x 6 size, stapled but not illustrated. Crossbows, wheel locks, matchlocks, early flintlocks, blunderbusses, early air guns, rampart guns, whaling guns, as well as later arms and military rifles, both domestic and foreign, are included. The same representation of all periods and types is true of the handgun section of this famous collection.

* * *

Ratliff Collection of handguns, barrels, ammunition, rifles, cases, shotguns, etc., is offered for sale in two lists received from Paul D. Ratliff of Spokane, Washington, who has specialized in fine S.-S. rifles. This is his personal collection offered to N.R.A. members at 10% discount off his list prices.

* * *

Ithaca Gun Company announces as of middle December that all Ithaca, Western and Lefever shotguns available for civilian use have been sold out, with the exception of a few Ithaca single trap guns and a few Ithaca high-grade doubles from the No. 4 Ejector grade up. The Ithaca Service Department is still repairing sportsmen's guns and will operate as long as possible while the plant is producing Skeet and riot guns for the war, this in turn being a side issue to their main war job of manufacturing .45-caliber Service pistols.

* * *

Announcements. Tom Gresham advised me that his war work is so strenuous in the number of hours and required exactness of application he has been forced to give up his gunsmithing for the duration even as a side line. Bomber tool and fixture inspection is Tom's assignment.

Joe Adriance, the set-trigger man, who has been out of the gunsmith business for some time, is working in the same department with Tom.

THE ARMS CHEST

The Arms Chest is an open market trading post where manufacturers, distributors, purveyors of professional services, and our own readers may cry their wares to fellow sportsmen at a modest cost. Returns are uniformly excellent—scores of advertisers have reported truly phenomenal results.

Advertisements are accepted from annual and life members of the National Rifle Association, *for personal transactions exclusively*, at 8¢ per word INCLUDING NAME AND ADDRESS, minimum charge $1.20. For all *commercial* advertisements the rate is 10¢ per word INCLUDING NAME AND ADDRESS, minimum charge $1.50.

Groups of figures are computed as one word. Spell out all descriptive words; abbreviations may lead to serious misunderstandings and thus impair the effectiveness of your ad. A *specific* price must be stated on all *for sale* ads. Box number or blind ads will not be accepted. Please give your *complete* name and address, so as to insure the prompt delivery of all mail or telegraphic replies. All advertisements *must* be accompanied by cash. Final closing date is the 5th of the preceding month. *Please print all advertisements plainly*—we cannot be responsible for errors due to illegible writing.

In describing the *condition* of guns advertised these standard phrases must be used: *Perfect* means factory condition. *Excellent* means new condition, implying negligible amount of use. *Very good* means practically new condition, implying little use, resulting in no appreciable bore wear and only minor surface scratches or wear. *Good* means moderate use with some finish worn off, only moderate bore wear with no pits and nothing worse than a little roughness in the bore. *Fair* means reasonably hard service, reasonable wear inside, nothing worse than minor pits in the bore, implying the gun is sufficiently accurate for hunting. *Poor* means marred appearance and pitted or badly worn bore.

MEMBERS EXCHANGE

A quick, inexpensive medium for disposing of guns and accessories no longer needed, or for the purchase of more suitable similar items. We urgently request that a full description be given of every article offered, and its *condition* (see complete instructions above), for transactions of this sort must be based entirely on good faith and mutual satisfaction. Deliberate misrepresentation will of course result in immediate expulsion from N. R. A. membership.

Purchasers who wish to examine, before acceptance, guns or equipment purchased thru these advertisements should request shipment by express, C.O.D., *with examination privileges.*

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THE REVOLVER TIMING RECORD. A 10 inch RCA-Victor phonograph Record. Practice Timed and Rapid-Fire anywhere, by yourself. Nothing to watch—just listen. For "dry" shooting, basement and outdoor ranges. One side 10 second timing, other side 20 second timing. Plays on any phonograph. $1.50 postpaid. The Original Sight-Exchange, Box J. Paoli, Penna. 1-44

WINCHESTER 52, HEAVY BARREL, EXCELlent, Marksman stock, checkered, Vaver front with barrel band and Vaver rear sights, with case worth $15.00, $68.00. Dr. A. Grindy, 4029 Crystal Street, Chicago, Ill. 2-43

500 "KLEANBORE" HORNET CARTRIDGES mushroom, $2.75 box, $25.00 lot. Savage 219 Hornet, Weaver 355 scope, excellent, $25.00. Stevens 22-410, about as new, $15.00. J. B. Cook, 55 Andover Ave., Buffalo, N. Y. 2-43

LARGE STOCK OF AMERICAN AND European Antique Arms. Send 10¢ coin for latest 9th edition catalog, featuring the important Dr. Buck collection. Antique arms wanted. We buy single pieces or whole collections. Fair prices paid. Kimball Arms Co., Woburn, Mass. tf

WINCHESTER ENFIELD SPORTER, PACIFIC peep rear sight, King red bead front, sling and quick release swivels, excellent to perfect condition, 75 cartridges, $60.00. Clarence Hemer, Arthur, Iowa. 2-43

SAVAGE SPORTER, .30-06, 29S WEAVER SCOPE, Redfield Junior mount. A-1 condition, $70.00. Mrs. D. O. Lafferty, 1818 Taylor St., Amarillo, Texas. 2-43

WINCHESTER 70 BULL, 300 MAGNUM, EXcellent, fired 100 rounds, Vaver 35-MW-522 rear, no front, $115.00. Winchester 70 Target, 220 Swift, excellent, fired 250 rounds, Lyman 48 rear, no front, $105.00. Both will hold minute groups. Fecker 8X, 1⅛ Target Scope, excellent, ¼ minute click mounts, $60.00. Walter Day, Police Hdqs., Seattle, Wash. 2-43

FOR SALE: ARMY 45 SMITH & WESSON, V. G., $22.50. 38 Police Positive, V.G., $23.00. Luger 30, fair, $20.00. Will buy Frontier 44-40 or 32-20. B. W. Wilder, 4511 Browndale Ave., Minneapolis, Minnesota. 2-43

MODEL 70-06, EXCELLENT, $75.00. M. T. Woodsman, excellent except hair-like crack in stock, also holster, $63.00. 38 Special Police Positive, 2" barrel, also new 4" barrel, spring shoulder holster, $45.00. WANT—22-45 Conversion or Service Model Ace with Conversion Unit. Paul Hinkley, P. O. Box 3202, Portland, Oregon. 2-43

$1.00 GOVERNMENT LEATHER HOLSTER for 45 Automatic Pistol. Slightly used. Weil's Curiosity Shop, 12 Strawberry St., Philadelphia, Pa. 2-43

22 CALIBER GUNS: COLT, WOODSMAN, 4½", perfect in, excellent out, $55.00. Another 6½", good, $45.00, another very good, $50.00, another, excellent, $55.00. Another, perfect, $60.00. Harrington & Richardson, 6", Trapper Model, small frame, perfect in, good out, $15.00, another, Model 992, large frame, good out, excellent in, $20.00, another, Sportsman, 6", perfect, $40.00, Colt Official Police, 6", 41 frame, perfect in, excellent to perfect out, $65.00. Smith & Wesson Straightline, Single Shot, custom made, case and accessories, perfect, $75.00. Rudolph's, Atchison, Kansas. 2-43

FOR SALE: WINCHESTER 21, 12-30 MOD-FULL. Excellent. First $50.00. Frank Limpert, Hicksville, Ohio. 2-43

COLT OFFICERS MODEL 38 LIGHT BARREL, spare heavy barrel, inside very good, outside holster worn, $50.00. Colt Police Positive 22, same condition, $30.00. Holsters. Paul Ripley, 18 South Ave., Natick, Mass. 2-43

EXCELLENT MODEL 11 REMINGTON 12 Gauge, raised matted rib, Cutts Comp., $75.00. Excellent Belgian Browning, 12-30 full, $65.00. 38 Colt O.M. 6" Standard barrel, $45.00; 22 Colt O.M. 6", $45.00; both very good or better. Charles W. Riley, 231 Hosea Avenue, Cincinnati, Ohio. 2-43

FOR SALE: CURLY MAPLE, WALNUT and Cherry Stock Blanks. L. G. Stockberger, Garrettsville, Ohio. 5-43

WINCHESTER 52, H. B., VERY GOOD, TARGET (refinished) stock, pistol grip, trigger shoe, 10X Malcolm Scope, Vaver front, factory leaf rear, case, sling, equalizer, keeper, mitten. $65.00. Leonard Goick, Austin, Minnesota. 2-43

$80.00 EACH F.O.B. VERY GOOD 1-A GRAFLEX 2½x4¼ Tessar IC-f.4.5. Excellent Lemaire interchangeable 6X-8X-10X Binoculars. Excellent M.54 .30-06 Target, 48-17 Lymans. Very good Mannlicher Sporter, .30-06, D.S.T., trap butt, 1-A Lyman, folding leaf sights on barrel. Aathar Anderson, Richford, Vermont. 2-43

REMINGTON ENFIELD, 22 INCH BARREL, service stock altered slightly to Mannlicher type, Rice rear, folding leaf, ramp front, very good, $32.00. Service Ammunition, mostly 1928 and 1934, $4.50 hundred. S. & W., M. & P., 32-20, 6 inch, nickel, pearl grips, excellent, in factory box, $37.50. Colt Frontier .45, 7½, fair, $17.00. Arthur Boll, Nokomis Lodge, Eagle River, Wis. 2-43

22 CAMP PERRY: 22 S. & W. PERFECTED; both 10", excellent; 52 Winchester, sling, peep sights, tapped for scope blocks, very good; $35.00 each. Member. W. H. Icenhower, Washington C.H., Ohio. 2-43

.38 SPECIAL COLT'S OFFICER'S MODEL, 6" heavy barrel, Patridge Target Sights, Berdon action, blued, excellent condition. $60.00 prepaid. T. O. Stark, W. Va. State Police, Fairmont, West Virginia. 2-43

WINCHESTER 70, 257 ROBERTS, PERFECT, never used, 48WJS sight, 80 shells, top grain leather case, $100.00. Winchester 12, 16 gauge, 26" modified, excellent, leather case, $50.00. Harry Millner, 1629 57th Court, Cicero, Illinois. 2-43

38 SPECIAL COLT OFFICIAL POLICE. 6 INCH barrel. Perfect in, very good out; two boxes Police Service ammunition. $45.00. Smith & Wesson 44 Special Triplelock 6½ inch barrel. Perfect in, very good out. 400 rounds late ammunition. $60.00. 38 Special Police Colt, 4 inch barrel. Good, $22.50. First Money Orders. Harold P. Klein, West Bend, Wisc. 2-43

WARD'S HUNTING COAT, SIZE 40, $2.50; hunting pants, size 36, $2.00; Excellent; .44 Spl. shell resizing die, $1.50, same bullet sizer for Ideal, $1.50; .30-30 Potter dies, headplate, like new, $9.00; Rifleman, June 1934-Dec. 1942, $10.00. A. R. Halley, Box 795, Huntington, W. Va. 2-43

SALE: 250, .270 WINCHESTER CASES, $7.50. WANTED—.22 L.R. Cartridges in 1,000 lots. H. F. Hill, 596 James, Hazelton, Pa. 2-43

ANTIQUE AND USED FIREARMS. SEND 5¢ for list. H. A. Brand, 1008 Ingalls Bldg., Cincinnati, Ohio. 7-43

WINCHESTER 75 TARGET. ADJUSTABLE sights. Excellent in, stock scratched. Shoots possibles. $40.00. Will consider 20 gauge double. B. L. Cochrane, 1001 N. Harvard, Arlington Heights, Ill. 2-43

FOR SALE: 70 WINCHESTER, 257 ROBERTS, with 440 Weaver scope. Excellent or better. Fifty cartridges and sheepskin case. $100.00. H. I. Simonds, 807 Edgehill, Jacksonville, Ill. 2-43

WINCHESTER MODEL 24 DOUBLE, 20 GAUGE, new, $44.00. Ithaca Pump 20 gauge Skeet, ventilated rib, new, $77.00. Beautiful Stevens engraved D.S. 22 Rifle, 13 lbs., very good, $25.00. W. Emmett Hall, Good Hope, La. 2-43

HARRINGTON-RICHARDSON 22 SPORTSMAN, very good, $32.50. Stevens Off-Hand 22, excellent, $15.00. Winchester 97-12, fair, $17.50. Remington 12-A 22, fair, $7.50. Argus Camera, excellent, $15.00. Enlarger, new, $12.50. Electric timer, $5.00. Photographic Accessories. Rifleman 1933 to 1943, $10.00. Accept following trade: 241; 63; 513T; 75T; 19; 61; 121; 23-AA; 62; 23D; 19-H; 218-B; 29-S Scope. H. J. McKinnon, Clarinda, Iowa. 2-43

SPRINGFIELD N. R. A. SPORTER 1295352, EXcellent, L48, scope blocks, bolt altered, checkered grips, ammo., $65.00. Savage M220 410 and extra 22 Routledge bbl. raised flat rib, Lyman sights, $22.00. WANT—Lyman 438 scope. J. M. Beecher, Gen. Delivery, Tucson, Arizona. 2-43

SELL: 52 SPORTER, LYMAN 48, 355 WEAVER scope, B mount, sling, excellent, $97.00, or trade for Model 12, Skeet, straight grip, ventilated rib, or Browning Auto 20, rib and case shells or model 12, 20 or 16, rib and case shells. All must be new condition. Wm. Eisfelder, Pinckneyville, Ill. 2-43

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Caliber .30-'06—Weight 12½ lbs.—Capacity 25 Shots

For accurate single shot sniping or fast automatic bursts.

Can be fired from the shoulder by single shots as accurately as a rifle.

20 shot detachable box magazine—horizontal feed.

250 rounds per minute can be delivered by a 2-man crew.

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FOR SALE: BOLT ACTION WINCHESTER 30-06, Bull Gun, latest Marksman stock, checkered, 48 rear, blade front, blocks, perfect, fired less than 50 rounds, $110.00. 30-06 Ammunition, 10¢ per round, as follows: 124 Silvertip, 180 grain; 325 Soft Point, 220 grain; 60 pointed B.T., 172 grain; 58 Remington Palma Match. Edward Morgan, U.S.N. Air Station, Quonset Point, Rhode Island. 2-43

YANKEE "D" HEAVY BENCH LOADER, .30-40 and .45-70, brand new, extra base with drawer, $25.00. Remington 29 Pump, 12-28 modified, excellent in, good out, case, Powers rod, shells, $40.00. 500 #7 B.P. Primers, $3.00. Walton C.P.A. Accounting Course, 5 volumes complete, $10.00. Fred Knack, 14344 Mark Twain, Detroit, Mich. 2-43

$4.00 STEEL SAFETY DEPOSIT BOX 14 X 14 inches. Double lock protection valuable papers, jewelry, money. Mail orders filled. Weil's Curiosity Shop, 12 Strawberry St., Philadelphia, Pa. 2-43

38 OFFICERS MODEL TARGET, 22 MATCH Target, perfect, Roper grips, case, $120.00. Complete Pacific Reloading Equipment, 38 Special, lots components, stamp for list. WANT—Remington 37 Rangemaster, new or perfect, ammunition. A. Duesoi, 5 Bentley Ave., Jersey City, N. J. 2-43

HI-STANDARD MODEL "A", PERFECT FACtory condition, 6½" barrel, $55.00. Another Model "A", excellent to perfect, $50.00. Colt 38 Special Police Positive in very good condition, $50.00. Will also consider trade for 45 Automatic, perfect or excellent. S. Doppelt, 363 Shepard Rd., Mansfield, Ohio. 2-43

OFFERING COLLECTION OF HIGH grade cased double muzzle loading shot guns by famous makers. Also listing some desirable flint and percussion rifles in shooting order. Specify which list wanted. Stamp please. Kimball Arms Company, Woburn, Mass. tf

FOR SALE: 7 INCH STEEL PROJECTILES, 31 inches high. $15.00. D. L. Smith, 17301 Wisconsin Avenue, Detroit, Mich. 2-43

REMINGTON MODEL 11, 12 GAUGE AUTOmatic with Polychoke, perfect, $70.00. William Riese, Jr., 77 East Haverhill Street, Lawrence, Mass. 2-43

25 CALIBER NIEDNER ROBERTS SPORTER, 440 Weaver with 6X objective in Redfield mounts, 750 bullets, 100 cases, Pacific dies, 200 primers, factory inside, nearly out. $105.00 outfit. 2R Lovell Mauser, by Jaeger, Mannlicher stock, repeater, 330 Weaver with 1¼ objective, QD swivels, cases, bullets, and primers, new, cost $293.00, take $200.00, has single set trigger, Redfield safety, etc. Enfield action minus extractor, fair, $18.00. Luger, 8 inch, D.W.M., holster, rod, three boxes cartridges, $48.50. Custom 52 H.B., 24 inch, Maple stock, three position by Smith, $85.00. Super Target Spot, about new, $90.00. 63 Winchester, fancy grade stock, $50.00. 1000 .22 L.R. with 52 and 63 at $11.75 if wanted. Sedgley Sporter, 48 and ramp, cases and bullets and primers, Varminter, about new, $125.00. 5A Lyman (new model) triple Lee dot, $50.00. Fecker 8X non click, about new, $45.00. Cash only, stamp. K. A. Axline, member N.R.A., 321 E. Locust St., Bloomington, Ill. 2-43

EXCELLENT ZEISS 12X40 TELDNAR BINOCulars central focus, good case, $85.00; may consider 70 Super Grade in trade. WANT—45 National Match. S. & W. Magnum. Spotting Scope. Super Targetspot. Late 37 Remington. 22 Match ammunition. Hans Lafrenz, 1702 West Tonto, Phoenix, Ariz. 2-43

SAVAGE SPORTER HORNET, WEAVER 344 scope, T-1 mount, sling, box shells, canvas case, very good plus, shot one box shells, $58.50 cash, or auto shotgun in trade. J. C. Curtis, New Lisbon, Wisconsin. 2-43

WINCHESTER TRAP, VENTILATED BARREL, model 12, 12 gauge, pistol grip, excellent, $90.00. Model 24 Remington Automatic, for 22 shorts, very good, $22.50. Lefever double barrel, 12 gauge, nitro special, very good, $25.00. C. W. Cavaness, 2214 Broadway, Parsons, Kansas. 2-43

38, 41, 45 CALIBER REVOLVERS: 38 SMITH & Wesson, Special, Military & Police Target, 6", perfect, $60.00. Another, excellent, $55.00. 38 Colt Police Positive, 4", pearl handle, fair to good, $30.00. 38 Smith & Wesson, 3¼", pearl handle, top break, engraved, nickel plated, good, $20.00. 41 Colt D. A., 6", fair, $15.00. 45 Colt D.A. 5½", U. S. Army Model 1917, good, $25.00. Another, excellent, $40.00. Rudolph's, Atchison, Kansas. 2-43

.45 COLT AUTOMATICS, GOOD CONDItion, $45.00. .45 Colt Automatics, good condition mechanically, fair appearance, $40.00. Colt .38 Military Model Automatic, good mechanically, fair appearance, $30.00. .380 Colt Automatic, good condition, $30.00. .32 Colt Automatic, good condition, $25.00. .25 Colt Automatic, good condition, $20.00. .25 Werke Automatic, good condition, $20.00. 9mm Luger 7½ in. bbl., good condition, complete with holster, $45.00. S. & W. 4 in bbl. blued steel 5-shot Revolver, $15.00. Iver-Johnson hammerless blued steel .38 Revolver, good condition, $10.00. Hopkins-Allen solid frame .32 6-shot, good condition, $5.00. Remington Double Barrel Derringer, new condition, $25.00. Also one of poor appearance but OK shooting condition, $12.00. Model #70 Winchester .30-06, micrometer sights, perfect, $90.00. 12 Ga. Iver Johnson, auto ejectors, perfect, $35.00. 13 inch Revolutionary Flintlock Pistol, good condition, $35.00; same size in old Miquelet Lock with ball trigger, $35.00. For complete list of Antique and Modern Guns write Elliott Gillespie, 4816 Aldrich Ave. South, Minneapolis, Minn. 2-43

ANTIQUE GUNS: FLINTLOCKS, PERCUSsions; long, short arms; write your wants. Leslie Keller, Belcourt, North Dakota. 2-43

COLT'S SHOOTING MASTER 44 SPECIAL, Roper and regular grips, patridge sights, perfect condition, $60.00. H. W. Dachtler, 218 Michigan, Toledo, Ohio. 2-43

WINCHESTER 30-30 MODEL 64 CARBINE, EXcellent out, perfect in, King flat top rear sight, 25 cartridges, first money order $60.00. Smith and Wesson .45, Model 1917 Army, good, sheepskin holster, 74 rounds Frankford Arsenal ammunition, 18 clips, first money order $37.50. Robert L. Smith. Box 124, Wiscasset, Maine. 2-43

REMINGTON MODEL 513-T, EXCELLENT. 100 rounds ammunition. $35.00. William Hake, 17 Forest Lane, Scarsdale, N. Y. 2-43

SINGLE SPECIMEN CARTRIDGE LIST #7 for collectors. Contains approximately 1,000 different cartridges, loading tools, and accessories. 10¢ Stamps or Coin. Carl Metzger, 2305 Canton St., Dallas, Texas. 2-43

SPRINGFIELD 22 M-2. BARREL, ACTION AND Lyman 48 in practically new condition. Checkered stock good, $75.00. C. M. Hughes, Box 47, Monroe, Louisiana. 2-43

FOR SALE: DIRECT, POSITIVE CAMERA Model "G", 2½" x 3½", 2 yrs. old but never used, Wollensak F4.5 Velostigmat, 5¼" automatic shutter, complete outfit, including heavy tripod, rubber bulbs, tanks, d.p. paper (2 rolls) about 200 cardboard folders and frames, tongs, group or view auxiliary lens, etc., cost over $140.00 new. First M.O. for $75.00 gets it. Also 5 x 7 Pony Premo, f8 lens, 1 to 1/100, T & B, just overhauled and cleaned, new bellows last year, excellent, heavy leather case holds camera, holders film. Money order $15.00 gets this. Will consider trade either of above for Argus, B. & L., or Zeiss Spotting Scope or what have you? M. Verne Brown, Galva, Illinois. 2-43

SMITH "TRAP" GRADE, 16 GA., EXTRA barrels, single trigger, ejectors, beaver tail forearms, excellent, case, $160.00. Details, stamp. Remington 37, perfect bore, excellent outside, sling, Wilder pad, 1000 Super Match cartridges, $70.00. 9mm Luger, 4", very good, $5 cartridges, $35.00. S. & W. 38 M. & P., 2", unfired, perfect, 50 cartridges, $57.50. Two Weaver 29S scopes, perfect, $14.00, used, $12.50. Roper stocks for K-22, $7.50. Five High Standard Magazines, each $1.75. Ammunition—200 .38 Auto, $7.50; 200 .30 Remington M. C. $10.00. Money orders only. E. Thomson, 23 Pinckney, Greenville, S. C. 2-43

D. W. M. LUGER, GOOD CONDITION, $26.50. WANT—Maxim L.M.G. Bipod. Mauser 1898, preferably Waffenfabrik-Oberndorf. Tom Murphey, 141 Cambridge, Pleasant Ridge, Mich. 2-43

MODEL 70 .30-06 WINCHESTER, CUSTOM mounted Alaskan, 60 cartridges, $145.00. Model 70 Hornet, 6X Junior Targetspot, 150 cartridges, $127.50. Model 75 Sporter; 330 Weaver custom mounted, 500 cartridges, $66.30. All excellent to perfect with honed actions and slings. Model 12; 12-28 modified, Weaver scope attached, recoil pad and extension slide handle, custom case, excellent, $71.80. Latest B. & L. 8 x 40, individual focusing, Binoculars, tan case, new, $94.40. Fine Conley 5 x 7 View Camera, 6.3 Anastigmat lens, many extras, $46.45. Model 63 Winchester, 29S Weaver, perfect, 500 cartridges, $53.60. Frank Showalter, 10 West Pease Ave., West Carrollton, Ohio. 2-43

SPRINGFIELD NATIONAL MATCH #1402926, excellent in, very good out, $50.00. Richard Zehl, 1306 E. 2nd St., Duluth, Minn. 2-43

COLT'S WOODSMAN, FAIR BUT OLD, $27.50. Winchester 52 Heavy Barrel, Redfield front, Lyman 48J rear, extras, very good, $65.00. Winchester 52 Standard Barrel, very good, Redfield front and Marlin 4X scope, $55.00. 500 Long Rifles free with each above. Savage model 219 Hornet, Factory grease, $15.00. H&R DA Sportsman, very good, $27.50. Karl Knight, Quaker City, Ohio. 2-43

FOR SALE: 20X WOLLENSAK SCOPE, PERfect, leather case slightly scuffed, $20.00. H. W. Palmer, Box 892, Brownsville, Texas. 2-43

WANTED—POTTER DUPLEX TOOL. AUTOmatic preferred. High Standard A-B-C. Springfield Sporter .30-06, hardened action. Almon Williams, Berea, Ohio. 2-43

BULLETS, .32 CAL., 165 GR., PERFECT HAND Cast, $5.00 per M.; Trap gun, Fox single, excellent, $65.00, orig. $138.00; 12 gauge reload outfit, $7.50. O. A. Franklin, 1540 Portola Dr., San Francisco. 2-43

L. C. SMITH TRAP, VENTILATED RIB, SINGLE trigger, Auto Ejectors, Case, $100.00. 52 Win. H. B. Pistol Grips, Inlay, beautiful carvings, 5A Win. Scope, blocks, Mounts, Case, 32 power Spotting Scope Tripod, $90.00 cash. Homer H. Alka, Box 206, Mt. Carmel, Ill. 2-43

MUZZLELOADING REVOLVERS. COLT and Remington 44 and 36 caliber revolvers in fine shooting order, also moulds. Stamp for list. Kimball Arms Company, Box 257, Woburn, Mass. tf

FOR SALE: MATCH TARGET WOODSMAN, wood stocks cut to fit hand, slight scratches on frame, otherwise excellent, $60.00. Official Police .38 Special 6", very good to excellent, $50.00. 45 S. A. A. 5½", excellent, $45.00. 41 D.A. 6", excellent, $25.00. Luger 9mm, excellent, $35.00. Several 44 muzzle loaders, very good. .38 S. & W. Cases, $2.50 per M. .38 Special Cases small primer, $3.00 per M. Charles Lawson, 89 Myrtle Ave., Edgewater, N. J. 2-43

30 AND 30-40 AMMUNITION, ODDS AND ENDS. Not over 3¢. Paul Mason, 33 Third Street, Ayer, Mass. 2-43

REMINGTON 37, LATEST, FACTORY SElected, adjusted, extremely accurate, Henshaw trigger shoe, Pachmayr pad, beautiful dark stock, sling, no sights, with 1000 Western Experts, positively perfect, $69.50. Fecker 1½, 8X, best mounts, positively perfect, $58.50. First money orders. M. L. Lund, 312 Jackman Street, Janesville, Wisconsin. 2-43

FOR SALE: TWO QUALITY RIFLES; 270 WINchester barrel on Springfield action, by Dubiel. Beautiful tailored stock, cheek piece, front ramp, Lyman 48, Minor stock scratches, Excellent M-1 Sporting Springfield .22, new barrel, Lyman 48 and new Lyman 5-A scope. Excellent. Price $100.00 each, at Wichita Falls, Texas. B. B. Greever, Box #874, Wichita Falls, Texas. 2-43

The Marlin Firearms plant is now 100% on war production.

Now here's a chance for you hunters and target shooting fans, to *cash in* on your knowledge of guns! Marlin—always on the lookout for new ideas to improve sporting firearms—wants to hear from you. Sportsmen and gun dealers are cordially invited to join Marlin's big Gun Contest—with $1,000 in cash prizes to shoot at. And remember, many a good idea is simple and easy to describe. Your chance is as good as the next fellow's to win a prize. It's easy to get in the contest—read the details below and send your entry in today! Contest ends July 1, 1943.

Jot down your ideas for improving any current model Marlin Gun. Follow the simple contest rules and send your entry in. If you wish, you may suggest new features, not at present in the line. A free catalog is yours for the asking, to review the features of Marlin Guns.

U.S. WANTS IDEAS TO HELP WIN THE WAR

Marlin wants your ideas for SPORTING GUNS. *And if you have an invention or idea that will help win the war, write to the National Inventors Council, Washington, D. C.*

PRIZES IN THE BIG MARLIN CONTEST

The first prize is $500.00 in cash; second prize $100; third prize $50.00; fourteen additional prizes of $25.00 cash each. Seventeen prizes in all! (Marlin suggests the purchase of U. S. Savings Bonds with the prize money.)

JUDGING

Three famous gun editors—Bob Nichols of Field & Stream, Jack O'Connor of Outdoor Life, Maj. Chas. Askins of Sports Afield—will select the winning entries. All ideas for which prizes are given become the property of The Marlin Firearms Company and none will be returned. Prizes awarded for the seventeen ideas which are most valuable and practical, in the opinion of the judges. Duplicate prizes awarded in the event of a tie. WINNERS will be determined and prizes announced as soon as possible.

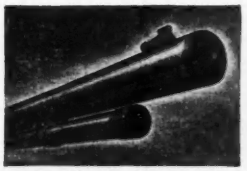
CONTEST RULES

The Marlin Gun Contest is open to all sportsmen and dealers in guns, with the exception of Marlin employees. Written suggestions must not exceed 300 words, the shorter the better. No limit to number of entries which may be submitted. Write name and address clearly on each suggestion. Mail entries to Dept. A, The Marlin Firearms Co., 17 East 42nd Street, New York City.

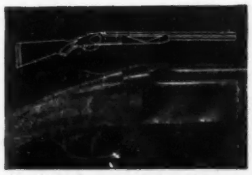
Entries must be received on or before July 1, 1943.

Win cash with your ideas! Enter the Marlin Contest today.

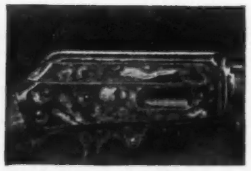
Marlin has been known since 1870 for progress in gun design, quality and dependability. Below are some famous Marlin features:



All Marlin rifles—lever action, clip and tubular magazine and .22 automatic, feature deep-cut, accurate, "Ballard" rifling.



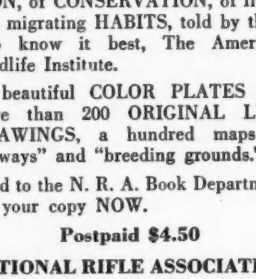
Marlin's Over & Under Shotgun, in 12, 16 and 20 gauges and .410 bore, is hammerless, cocks on opening, has sturdy one-piece frame.



Marlin lever action rifles, in calibers .22, .30-.30 and .32 spec., have the solid-top, case-hardened receiver, with safe side ejection.

BISHOP STOCKS Our latest stock has cheek piece designed so comb can be cut down to conform to height of sights. Material the same high quality and supplied with tenite fittings attached. For all bolt actions. Price $5.00. Mannlicher type $7.50. Individually hand fitted to your rifle, $4.50 extra. Shipping weight of stock, 4 pounds. Catalog ready.

E. C. BISHOP & SON **Warsaw, Missouri**



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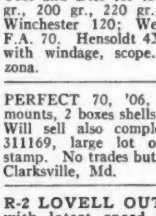
LIVE HORNED OWL; L. C. SMITH FIELD; 200 shells, all $55.00. Maurice Kimick, Scottsburg, Indiana. 2-43

COLT .45 D. A., V. G. IN, GOOD OUT, $30.00. Krag action, good, $7.00. Colt .25 Auto, good, $15.00. Edmund Fickert, Toms River, N. J. 2-43

BANKERS SPECIAL .22, FACTORY NEW, FACtory box, spotless, Heiser holster, $35.00 cash. Dr. Rudolf Patzig, Morton Grove, Ill. 2-43

WINCHESTER M-71, .348, NEW, UNFIRED, $60.00. 56 cartridges, with gun, $5.00. Browning Over & Under, 12, 28" ribbed, improved and modified, V. G. to excellent, sheepskin case, $80.00. Remington 11-A, 16, 28" full, ribbed, perfect, sheepskin case, $68.00, or trade for excellent Winchester M-12, 12 gauge, modified, ribbed, and cash. WANT—S. & W. or Colt; also Army Rifle. Stamp please. E. A. Bastel, Prairie du Chien, Wisc. 2-43

30 cal. Govt. Metal Case Bullets



150 gr. Cupro Nickel, $12.50 per 1000; 172 gr. Boatail, $17.50 per 1000. Lots of 5000, $2.50 per M, less. Under 500 1½ cts. and 2 cts. each, f.o.b., Penna. Samples, two bits. 30.06 blank ammunition, $5.00 per 100; 30.06 172 gr. ammunition, late date, $7.00 per 100. Krag, Springfield, Enfield parts. New Govt. Slings, oiled, $1.25.

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FOR SALE: 8X30 ZEISS BINOCULARS WITH case, $125.00. WANTED—Hensoldt 10X56; 10X50; Zeiss 10X50 Binoculars Featherweight. Catalogues; Newton Arms; Buffalo-Newton; Fred Adolph's "Modern Guns"; Ross Rifle; Jeffrey Rifle; Westerly Richards; old Hoffman Arms of Cleveland, Ohio or Ardmore, Okla. Books: Rifle in America; Sharpe's latest book on Reloading; Big Game Rifles & Cartridges, Keith; Book of Springfield, Military & Rifle Shooting, Ed C. Crossman; Telescopic Rifle Sights, Hunting Rifle, American Rifle, Townsend Whelen; Rifleman Went to War; McBride; Guns & Gunning, Paul Curtis; Our Rifles, Charles Sawyer; North American Big Game, Aldo Leopold; Handloaders Manual, Naramore; Records of North American Big Game. The Bullets Flight, Mann. .280 Dubiel with Niedner or Sukalle barrel; 150 gr. 180 gr. bullets; cases; primers; Schmitt No. 24 Reloading Tool and Dies for .280 and 300 Mag., 150 gr. 180 gr., 200 gr., 220 gr., .300 Mag. bullets. Primers: Winchester 120; Western 8½G; Remington 9½; F.A. 70. Hensoldt 4X Featherweight Dural-Dialytan with windage, scope. Sidney Morris, Tucson, Arizona. 2-43

PERFECT 70, '06, REDFIELD, NEW 330C, B mounts, 2 boxes shells, B. & M. rod, will sell $150.00. Will sell also complete, new B. & M. outfit for 311169, large lot of components, description for stamp. No trades but factory Hornets. A. D. Harris, Clarksville, Md. 2-43

R-2 LOVELL OUTFIT COMPLETE. KRAG with latest speed action, extra heavy barrel, flush sporter stock, 440 Weaver in special low mounts. 400 new cases (150 primed), 200 fired cases, 950 bullets, 900 primers, dies for Ideal tool. Everything excellent except outside rifle worn from carrying in gun rack. Gun used as demonstrator, fired about 400 shots. $100.00. No trades except perfect Silvamar Lightweight. Kenneth Clark, Madera, Calif. 2-43

SALE: .220 SWIFT HEAVY TAPERED BARREL, perfect action, Mauser, good set triggers, 5A scope, new sling and swivels, $55.00. WANTED—Best buy in perfect .220 Swift or any Varminter better than 4M f.s., with perfect 8 power or better scope, with 250 cases and bullets; 52 Winchester heavy barrel with Super Targetspot, 12 or 15 power; Misc. cartridge cases 30-40, 30-30, etc.; Rifle primers and 1 Pacific frame and misc. dies, bullets; 30-40 Krag Sporter; .38 Special Official Police, perfect, 4" bbl.; B. & L. Bull scope. Art Binder, Hillsborough Police Dept., Burlingame, Calif. 2-43

SEA KING OUTBOARD 5 H.P. MOTOR, NEARLY new, perfect, not fully broken in, $100.00. Belgian Browning O. & U. Trap 12-30 F. & M., single selective trigger and ejectors, Beaver, recoil pad, leather cover, perfect in, excellent out, $100.00. Ideal Sizer-Lubricator 45 and 35 dies, stick lubricant, perfect, $10.00. Carothers Automatic Bluerock Trap, excellent, $20.00. Wiley Miles, Lewellen, Nebr. 2-43

COLT .38 SPECIAL, OFFICIAL POLICE, 4", new, $55.00. Woodsman, holster, excellent, $50.00. Smith & Wesson, .38 Special, 6", holster wear, otherwise excellent, holster, $40.00. .25 Colt, factory box, excellent, $25.00. .380 Colt, holster, excellent, $25.00. .45 ACP, new barrel never fired, holster, excellent, $45.00. Savage .32, excellent, $22.50. Frank Pratt, Porterville, California. 2-43

FIREARMS FOR COLLECTORS. PRINTED, illustrated catalog #7, 1,100 items, $1.00. Large descriptive list 20¢. Far West Hobby Shop. 406 Clement, San Francisco, Calif. 3-43

FOR SALE: WINCHESTER MODEL 12, 12 GA., 30" nickel steel barrel only, Poly Choke attached, excellent condition, $25.00. Winchester Model 92 25-20 Carbine, very good, $20.00. Colt Frontier .22 Cal. Conversion 5" barrel, very good, $20.00. Tom Miller, 906 Poplar St., Waukegan, Illinois. 2-43

WALNUT HILL 417-1, SLING, CASE, EXCELlent, $45.00. Mauser .25 Automatic, excellent, $20.00. Tent 8 by 8, very good, $10.00. Coleman No. 2 Stove, very good, $5.00. Frank Hill, 2019 Washington, Easton, Penna. 2-43

WINCHESTER TRAP, 12-12, VENTILATED, large forearm, excellent, $100.00. Remington Model 11, 12 Ga., 3 shot Sportsman, 28" Mod. Rib, perfect, $75.00. Remington Model 11, 12 Ga., 5 shot, 28" full, rib, excellent, $70.00. Browning O & U. Superpose, 12-30 F. & M., selective T., Auto, Ext. Exc. $100.00. Winchester Trap 410, straight checked stock, large forearm, Cutts Comp., 2 tubes, perfect, $75.00. Winchester 12-12, large forearm, Cutts Comp., 2 tubes. Exc. $65.00. Winchester Mod. 40, 12 pad, Polychoke, Exc. $85.00. Remington Enfield 30-06 Sporter equipped with 29S, perfect, $85.00. Remington Model 11, 20 Ga., 28" full, excellent, $65.00. High Standard Model "A", excellent, $47.50. S. & W. 44 Spl. Heavy Duty Magnum grips, excellent except blue worn, $60.00. S. & W. 32-20 blue, 6½", Target grips, excellent, $42.50. Winchester 86 45-90, excellent, box of ammunition, $20.00. Remington barrel Model 11 20 Ga., 26" Imp. Cyl., new, $25.00. Same 28" Mod., excellent, $22.50. 95 Winchester US 30 barrel, 1903 Model, perfect, $20.00. Ideal Reloading tool, 32 S. & W. short, $3.50. Winchester Reloading Tool 32-40; 38-55; 38-56; 38 Long & 38 S. & W., $3.00 each. Bullet Molds 25-20 SS and 32 WCF, $2.50 each. W. J. Bath, Independence, Kansas. 2-43

FOR SALE: BAUSCH LOMB 6 x 30, WITH carrying case, $32.00. Robert V. N. Davis, P. O. Box 109, Rutland, Vermont. 2-43

ITHACA, FEATHERLIGHT, 37-R, 16 GA., 28" full, excellent, price, $50.00. Winchester Model 12, 16 Ga., 26" Mod., good, $37.50. Roy Covington, 436 So. East, Jacksonville, Ills. 2-43

SAVAGE 1899, 30-30, EXCELLENT, $35.00. Military Mauser, $14.00. Ithaca 10 Hammer, $6.00. John Colbert, East Chatham, N. Y. 2-43

SAVAGE #99, 250-3000, LIGHTWEIGHT, TAKEdown, very good, $45.00. Winchester #92, 38 W.C.F., good, action very good, $25.00. Eastman, Cine 8, Model 60, F:1.9, excellent, $50.00. WANT—Hornet; tools and primers. E. G. Mellies, 7518 Forest View, Normandy, Mo. 2-43

32 & 32-20 CALIBER REVOLVERS: 32 COLT Police Positive, 5", perfect, $50.00, another 4", excellent, $40.00. Colt D. A. New Pocket, 6", good, $30.00. Harrington & Richardson, 3¼", Top Break, good, $10.00, another 2" solid frame, good, $10.00. 32-20 Spanish 5", very good, $25.00. 32-20 Colt Army Special, 5", perfect, $65.00. Rudolph's, Atchison, Kansas. 2-43

CLOSING ESTATE: .300 H. & H. WILSON-MADE rifle, excellent condition, Hand-honed Enfield action, heavy target barrel. Detachable front and rear Redfield sights, interchangeable inserts. Scope blocks attached. Perfectly imbedded Bishop cheek-rest stock, adjustable front sling swivel. All in wool-lined case. 10X Lyman Target spot, perfect condition, in woollined case. B. & M. cleaning rod, three tips. Special made sling, wide arm-cuff. Randle shooting glove. Aluminum rifle-rest. 254 live Matched Remington and Western ammunition. 110 empty brass cases. 120 copper-jacket boat-tailed bullets. Wilson-made .300 H. & H. loading tool to fit this particular chamber, with lever type arbor press. All in moisture-proof gun box. This rifle made 2nd place 1940 Perry matches at 1000 yards. First $185.00 money order gets rifle, accessories and ammunition, complete. Mrs. Homer C. McDaniel, 215 W. Elm St., Enid, Okla. 2-43

ODD LOTS AMMUNITION, GUNS—Specializing in Single Shot Rifles for .22 conversion. Rare Sharps, Rifles and ammunition. Large list for 3¢ stamp. 10% discount to N.R.A. members. Paul (Single Shot) Ratliff, N4912 Market, Spokane. 2-43

CUSTOM SPRINGFIELD SPORTER #1502588. Beautifully figured, stock cheek-rest, ramp front and Lyman 48 Peep. Detachable sling-swivels, sling. Honed-action, shot 40 rounds, slight scratch on barrel, $110.00. Bisley Colts 38-40 barrel, perfect outside, very good, $30.00. 32-20 Barrel, slightly pitted but bore tight, outside excellent, $30.00. Savage Auto 32, perfect, $30.00. Mauser Auto 7.65, slightly pitted, outside excellent, $30.00. Colt Auto 25, perfect pearl handles, $25.00. Luger 7.65 D. W. M., excellent, $40.00. WANTED—Argus spotting Scope and stand, Lyman Targetspot, 10 power. Abel P. Hedlund, 219 Metropolitan Bldg., Minneapolis, Minnesota. 2-43

WINCHESTER HB 52, INSIDE EXCELLENT, outside very good, Parker Hale rear sight, $60.00. B. & L. draw tube, Freeland stand, excellent, $25.00. R. B. Champlin, Springfield, N. J. 2-43

30-06 SPRINGFIELD SPORTER, VERY GOOD out, excellent in, $70.00. Few hundred late cartridges $5.00 per hundred. Will trade for late Lyman Super Targetspot of 15 or 20 power or will accept excellent Colt Woodsman as part payment. J. M. Lawson, Fourth National Bank, Wichita, Kansas. 2-43

FOR SALE—WINCHESTER HIGH SIDEWALL Hornet, Bishop stock, good in and out, $35.00. Glen Ellis, 516 West 4th St., Grand Island, Nebraska. 2-43

$1.50 EACH. SPRINGFIELD RIFLE BARrels. 30-06 Caliber. Second hand. Limited supply. We buy sextants, binoculars, field glasses, modern and antique firearms. Any kind, any condition. Weil's Curiosity Shop, 12 Strawberry St., Philadelphia, Pa. 2-43

ZEISS BINOCULARS 8x40 INDIVIDUAL FOCUS, case, $125.00. Perfect condition. C. Brockman, 466 Kimball Ave., Yonkers, New York. 2-43

SELL WINCHESTER 63 AUTOMATIC, 500 LONG rifle high speed hollow point cartridges, $40.00; Colt 25 Automatic, 68 cartridges, $16.00; Weaver 29S Scope, T mount, $12.00. All excellent. Member. Charles Weston, 1370 Seminole Drive, Greensboro, North Carolina. 2-43

COLT 45 S. A. A. NICKELED, 165 CARTRIDGES. Fired 35 times, $55.00. Woodsman, excellent, 500 cartridges, $60.00. Remington 41 pistol, fair, 19 cartridges, $10.00. Walter Searson, Westtown School, Westtown, Pa. 2-43

NEW 300 H. & H. 70 WINCHESTERS, CARtridges, $73.00. High number Springfield fitted with new 35 Newton Barrel, Sedgley tested, fitted, $65.00. 7 boxes shells, $15.00 to rifle buyer, $2.30 box. Savage Sporter Hornet Tapped Weaver, peep, excellent inside, very good outside, $20.00. 329 Weaver Scopes, $5.00. WANT—98 Kar-Gew 98 Mausers; give make, year, etc. National Match Star Gauged Springfield, perfect, above 1,286,000. .30-06 Barrels. .30-06 Ribbed Mauser. Walter Beilstein, 16 Bennett, Pontiac, Michigan. 2-43

MOEDL 8 REMINGTON AUTO., .35 CAL., ENgraved, stock finely checked and stippled, Tenite ivory butt and cap., bore excellent, very good out, $75.00. 8" Target Luger, 9mm, Franzite ivory, very good, $40.00. Krag Sporter, Stoeger stocked, Mauser sights, sling, very good, $40.00. 7.63 Mauser Automatic, cartridges, clips, very good, $45.00. 5½" Colt .45 SAA, Onyx, good, holster, cartridge belt, $37.50. WANT—Weaver 330, mounts, 1917 S. & W. .45, .45 Automatic, commercial. Capt. Buck Brown, Rt. 1, Largo, Florida. 2-43

FOR SALE—COLT OFFICIAL POLICE REVOLver, heavy barrel, .38 caliber, Pachmayr grip adaptor, barrel excellent in, good out, front and backstrap blueing worn, $46.50; Ideal mould, special list #360363, excellent short range bullet, $4.50. WANT—Keith Ideal mould #454424 or similar Keith type .45 Colt mould; pair walnut grips for .45 Shooting Master. A. H. Montgomery, Hadley, Mass. 2-43

5000 ROUNDS LATE TARGETMASTER, $45.00. 1¼ Litschert objective for Lyman, never used, $10.00. James R. Donovan, Box 444, Jacksonville, Fla. 2-43

FOR SALE ONLY—WINCHESTER 64 .219 Zipper, fired twice, 198 factory loads, perfect, $65.00. H. & R. Ultra Sportsman, .22 L. R., excellent, $30.00. Dr. John Sperber, 5202 Storer Ave., Cleveland, Ohio. 2-43

FOR SALE—COMMERCIAL 45 CAL. AUTO., new insides and target job by Berdon. Some primers and powder, $60.00. A-1 Course of Fingerprinting and Ballistics with complete corrected examinations and tools, $25.00. Arnold L. Terhaar, 6425 Cross Street, Jacksonville, Fla. 2-43

MATCH WOODSMAN, ROPER SIGHT, CUSTOM grips, Buchananized action, trigger pull, tooled leather case, extra grips, ammunition, ex. plus, $75.00. Officer's Model 22, two rear sights, excellent plus, ammunition, Pachmayr factory adjusted pull, $55.00. Smith 10 Perfected, excellent plus, ammunition, $25.00. Smith 10 Perfected, Partridge sights, little rough, good, accurate, ammunition, $20.00. Paul Mason, 33 Third Street, Ayer, Mass. 2-43

STANDARD 52 WINCHESTER, LYMAN 17-A front, 9 apertures, Standard Winchester rear, Vaver eye cup, adapter, 7 apertures, sling, excellent. Remington Automatic 12-28, excellent, $105.00. Arthur Santucce, 236 Netherwood Avenue, Plainfield, New Jersey. 2-43

SELL: BROWNING OVERUNDERS, $90.00 and up; Standard 52's and Bullguns; Officers 22; Ace; 54 Winchester 30-06; Modern and Antique Pistols, Rifles, Shotguns. Want—Pumps, Autos, Heavy Tens. Fred X. Johnson, Grand Ridge, Illinois. 2-43

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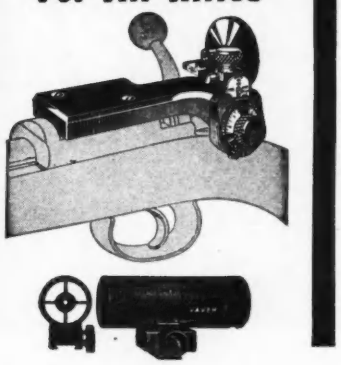

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WINCHESTER 52 STANDARD BARREL LYman 48T and 17A sights, also factory sights. Good condition, shot little, unusually true, $40.00. Grady Smith, Box 16, Holly Springs, Miss. 2-43

EXCELLENT A. WURFFLEIN M. L. CAL. 50 P. C. Target Rifle, blued barrel, German Silver ornamental trimmings and patch box, set triggers, $25.00. Excellent Peabody 45-70 Military Rifle, $12.00. Very good Halls Flintlock Harpers Ferry 1831, $25.00. Very good Johnson F. L. Martial Pistol 1842, $20.00. Good Savage P. C. 36 cal. Revolver, chip out of one grip, $10.00. WANT—Perrins Civil War revolver or Confederate Pistols. Lt. Col. L. R. Talbot, Westpoint, N. Y. 2-43

WINCHESTER H. B. HI-WALL, 22 L. R. LYmans, fair, $20.00. WANT—Match Target Woodsman for $50.00 cash. Frank Poock, 54 Federal, Reading, Mass. 2-43

.45 AUTO CLIPS, $1.00; 100 ROUNDS AMMUnition, $4.00; Ideal #3 Tools, .30-30 $4.00; .30-40, .38 Special combination, $11.00; Ideal Powder Measure, $6.00; 2 Springfields, very fine inside, $8.00 and $9.00; full length sizing dies, .30-06, .30-40, .30-30, $2.00; "American Rifle," Whelan, $5.00; Mauser Military Kar, very good inside, $18.00. WANT—Spotting scope, Rifle scope, S. A. Colt, .38-55-330 Pope mould. Ernest Baldwin, R. D. 1, Trenton, N. J. 2-43

CARTRIDGES FOR COLLECTORS. 1943 Catalog, 10¢. McDaneld & Wheeler, Osborne, Kansas. 2-43

WINCHESTER 63, WEAVER 29S SCOPE B blocks, 1000 cartridges, perfect, $65.00; Stevens 416, Weaver 344 scope, 1000 cartridges, excellent, $47.00; Officers Model Colts 22, excellent, $47.50; Winchester 74, .22 L. R. Weaver 333 scope, perfect, $32.00. Winchester 74, 22 Short, perfect, $22.25; Remington 550, Weaver 333 scope, perfect, $34.00; Bisley Colt 32-20, fair, $15.00. Jesse George, Brandon, Iowa. 2-43

25 COLT AUTOMATIC, GOOD, CARTRIDGES, $18.50; .38 S. & W., M. & P., excellent, $39.50; another, good, $27.00; .45 Automatic Commercial, good, $40.00; .38 Special Barrel, inserts 12 gauge, $7.50; Winchester Hi-Wall 30/40, 30", #3 barrel, excellent, $25.00; Stevens 44½, 32/40 V. G., $15.00; .351 Winchester, V. G., cartridges, clips, $60.00. A. V. Bissell, Terryville, Conn. 2-43

SELL: REMINGTON AUTO. .300 CAL., FACTORY condition, cost $88.00, sell $77.00. E. Baird, Broadstreet Ext., Groton, Conn. 2-43

HIGH STANDARDS MODEL B-4½", VERY GOOD, $32.50, 6¾" Reblued to excellent, $32.50. Colt New Service 44 Special 5½", excellent, $35.00. Commercial Colt 45 Auto, excellent, $75.00. 9MM Luger, 3¾", good, $22.50. 41 Colt Lightening Action 4½", reblued to very good, $15.00. Frontiers 45, 7½", excellent, $37.50. 38/40, 7½ fair, $22.50. 45 Bisley, factory new barrel and cylinder, excellent, $50.00. Have ammunition for all guns. Satisfaction guaranteed. Money orders only. C. L. Neumann, 3507 So. Benton, Kansas City, Mo. 2-43

U. S. 30-06 SERVICE RIFLE SERIAL RI 288468, excellent, $50.00; Mauser-Enfield 30-06, 48 rear, gold front, PG stock, pad, very good, $65.00; Krag action and 25" barrel, complete except sights, very good, $22.00; Winchester 94 cal. 30WCF 22" N.S. Oct., good, $25.00; Winchester heavy duck gun, chambered for 3" shell, 32" round, fine, $65.00; Browning 3-shot Auto 16G full, rib, pad, case, excellent, $65.00; Colt SA 45-4¾, B engraving, nickel, rubber, finish impaired, mechanically good, $30.00; Colt Army Special 32WCF, blue, 6", perfect, $30.00; Colt 380 Auto, blue, Audley spring holster, excellent, $20.00; Luger 9mm 4" Automatic, good, extra clip, $22.00. Satisfaction or refund. WANT Knoble Scope Mount; DCM Sporter Barrel, new. R. Wipprecht, 515 S. 42nd St., Omaha, Nebraska. 2-43

WINCHESTER ENFIELD, EXCELLENT, $50.00. Mossberg .22 heavy target rifle, Lyman Sights, very good in, $21.50. H. & R. .32 top break revolver, fair, $4.50. Colt .41 Lightning, 2½" bbl., fair, $12.50. Frank Wheeler, Osborne, Kansas. 2-43

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REMINGTON SPORTSMAN 20 GAUGE, MODIfied barrel, very good to excellent, $60.00. Money order only to Edward Austen, Jr., R. F. D. 1, Box 38-E, Lansing, Michigan. 2-43

WINCHESTER MODEL 40, 12 GAUGE, MODIfied, perfect, $75.00. Ammunition extra with gun only. William Edward Willis, 1334 Peterson Avenue, Long Beach, California. 2-43

WINCHESTER M63 .22 AUTO. RIFLE, LYMAN front, Marble tang sights, excellent, $35.00. WANT—Marlin O. & U., .22-410 combination. F. M. Dupar, Vernon, Conn. 2-43

COLTS-1917 ARMY REVOLVER 45 CAL. 4½" blued; excellent condition, $34.95. Target Pistols: Brand new H&R's 9 shot, #922 solid frame, $16.00. "22 Special", heavy frame, top-break, $25.00. Stamp for bargain list. Revolvers and automatics. Lee Sales Co., R-35 West 32nd, New York. 2-43

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FOR 257 ROBERTS, VERY GOOD: REDHEAD press complete with Ideal dies; Ideal shell-chambering and primer-pocket reamers; Belding-Mull 26 bullet seater; accurate bullet gauge; Keeper's Keeper; Naramore, Handloaders Manual, $22.00. 100 rounds Western 56 grain OP factory zipper, $8.00. A. C. Robertson, 63 Bates Avenue, Winthrop, Massachusetts. 2-43

JEFFRIES ENGLISH SIDE-LOCK DOUBLE rifle, first quality, 400 caliber, richly engraved, excellent, $250.00. Joseph Lang English 8 gauge magnum side-lock shotgun, first quality, 32-inch choke, blued steel barrels, beautifully engraved, excellent; 75 shells, $150.00. Winchester 70 bull gun, caliber 300 H. & H., Lyman peepsight, excellent; 400 rounds, $100.00. Best model Winchester 71, 348 caliber, peep sight, perfect, never shot, sling; 75 rounds, $65.00. Late model 37 Remington heavy barrel target rifle, best peep sights, adjustable aperture rear, inserts for front, perfect, never shot; 1000 rounds long rifle, $90.00. Winchester 70, 30-06, perfect, never shot; 80 rounds, $75.00. George H. Hoxie, 2nd, North Franklin, Conn. 2-43

2 NO. 4.6 POWER MALCOLM RIFLE SCOPES, one 18 inch tube, one 20 inch tube, one has latest 3 point Lyman mounts, the other has Malcolm No. C mounts. Each of these are in new condition. WANT—$22.00 each. Also have one Winchester 8 power scope with 3 point Lyman mounts, this scope in fair condition, $12.00. Jno. F. Ross, Shelby, Miss. 2-43

ENFIELD, ISSUE, EXCELLENT, $40.00. AMmunition extra. Krag, excellent in, good out, cut to 25 inches, 20 rounds ammunition, $25.00. New 29S, post reticule, B mounts for Enfield, $18.00. Enfield Sporter stock, not too hot, $7.00. Redfield micro rear for 70 Winchester, $7.00. K-22 with holster, $50.00. Laurence George, Plainfield, Illinois. 2-43

OFFICER FRIEND ENTERING NAVY. SELL—S. & W. 357 Magnum Revolver, 6½ inch barrel, "Call" front sight, special grips, excellent inside and out. Box cartridges, price, $100.00. Winchester Model 70, 276 Dubiel Rifle, 24 inch barrel, W.J.S. receiver, gold bead front, Alaskan scope with G. & H. mounts, sling and Q. D. swivels, recoil butt plate, excellent inside, good outside. Very accurate, price, $180.00; cartridges extra. Marlin Model 90 S. T. 20 gauge over-under, 26 inch barrels, top modified choke, bottom improved cylinder, double triggers, standard stock, recoil butt plate. New, never fired, price, $55.00. N. H. Roberts, Goffstown, N. H. 2-43

WINCHESTER 52, BULL GUN, MARBLE GOSS extension, Redfield front, with 2000 shells, price, $115.00. Stevens Model 416, ex. barrel, Lyman sights, with 1500 shells, $50.00. Officer's Model Target .38, 6" heavy barrel, $55.00. M. O. please. WANT—Winchester model 12 trap gun, ventilated rib. Scott Parker, Westernport, Md. 2-43

10-X TARGETSPOT, V. G., $48.00; 8-X, 1" Unertl, new, $50.00; Trade—.22 LR ammunition on short Woodsman. Vic Breneman, Hershey, Pa. 2-43

SELL—WINCHESTER S. S. R-2, PERFECT AT $35.00. WANTED—Winchester Hornet in 54 or 70 Model in good condition. W. C. Barnhart, Box 74, New Carlisle, Ohio. 2-43

NATIONAL MATCH SPRINGFIELD (1310687) fired 20 times, excellent, $85.00. Powder scales and weights, a beamed type, fitted throughout with jewels, cost $75.00, sell for $17.50. 100-32 Colt Auto Peters, $3.50. 90 30-06 Handloads, 169 etc., $2.70. 125 30-06 Government Issue, 1937, $6.25. 75 30-06 Government Issue, 1934, $3.00. 110 30-06 Government Issue, 1918, $1.25. 85 30-06 Government Issue cases, $1.00. 115 30-06 clips, $1.00. 40 30-06, 150 Gr. S. N., Peters $4.80; 20 30-06, 180 Gr. S. N., Peters $2.40; 20 30-06, 220 Gr. S. N., Peters $2.40. Last three items for $9.00. A. Hanson, 2715 Wood, Kansas City, Kansas. 2-43

WINCHESTER 12-20-26, FULL, GOOD, $30.00; 25 calibre 86 gr. lead bullets, 75 cents per hundred. WANT—54 Hornet. Oliver Magnuson, Souris, No. Dak. 2-43

ISSUE SPRINGFIELD, .30-06. FIRST CLASS shooting condition, barrel very good to good, $35.00. Ralph Needham, Perry, Iowa. 2-43

DOUBLE SET TRIGGER SWISS MARTINI ACtion, excellent, $15.00; Rigby Ballard Barrel, 34" iong, .45 cal., excellent, $10.00. Win. S. S. Action, fine, $8.00. WANTED FOR CASH—Shot Out Matted Rib Mauser Barrel; fancy model 1873 Winchester; 330 Weaver scope; .22 caliber bullets. William Willis, Attica, Ind. 2-43

FOR SALE—.22-250 (SAME AS VARMINTER) Mauser, low bolt handle, special Crisp trigger, new barrel, Bishop Sporter stock, blocks, sling. 500 Sisk bullets, 500 primers, dies. Outfit, $110.00. Clarence Jordan, 110 N. Hancock St., Madison, Wis. 2-43

GOULD'S "AMERICAN RIFLES 1894", $5.00. Winchester 1895 Catalog, $5.00. Blake Catalog, $5.00. Remington Hepburn 40-90. Remington Rolling Block 40-50. Both Target Sights, $18.00 each. Fred Wainwright, Grayling, Mich. 2-43

SMITH & WESSON 32-20 HEAVY FRAME, PERfect inside, very good outside, $50.00. Colt 25 Automatic, wood grips, very good to excellent, $25.00. S. Doppelt, 363 Shepard Rd., Mansfield, Ohio. 2-43

SELL: 9MM GERMAN LUGER, 4 INCH BARrel, good, $22.50. WANT—Model 21 Winchester 16 gauge, automatic ejector. Bert Moen, 800 1st Ave., Cedar Rapids, Iowa. 2-43

$250.00 OUTFIT. LATEST COLT S. A. A. 44 S. & W. Spec. X 5½". Chrome plated. Silver engraved stocks, gold Steer's Head Inlay. Handmade, lined, Bolero Belt and Holster. 30 thong laced loops. Studded silver engraved ornaments. $50.00 gold and silver engraved buckle. Buckle, keeper, tongue set with rubies. 30"-34" waist. Over $125.00 in gold, silver. 80 cartridges. $200.00 cash or $250.00 worth of guns in trade. Finest genuine Browning engraved Skeet Gun, $150.00. L. C. Smith Specialty Single Trap Gun, Elliot case, $100.00. 30-06 De-Luxe Sporter, 330 Weaver. New $125.00. 15 Handguns, $4.50 up. 5 page list, Guns, Ammunition, including late arrivals, 10¢ coin. WANT—22, 32, 38 O.M.'s. 12 or 16 Double and Auto. 22, other ammo. Buy, Sell, Trade. Member. Gordon Joslyn, Greenfield, Mass. 2-43

NATIONAL MATCH 45 AUTO LIKE NEW, $75.00. 1st Sgt. George W. Parker, Hq. Co. 357th Inf., Camp Barkeley, Texas. 2-43

KENTUCKY FLINTLOCK RIFLE, 42 INCH barrel, 44 caliber, original rifling, weight 8¼, curly maple fullstock with raised carving, shooting condition, $75.00. WANT—Wheelock pistol. Wm. Rolston, 1987 Buena Vista Ave., Detroit, Mich. 2-43

FOR SALE—KRAG CARBINE, 22" BARREL, very good inside, fair outside, $20.00. Remington 31T barrel, improved cylinder, ventilated ribbed, 27", excellent, $30.00. Max D. Martin, LaFontaine, Ind. 2-43

BALLARD, #6½ OFFHAND RIFLE 38/55 caliber 30" bbl., original equipment, no alterations, in good condition. Kirkwood Bros., Inc., 23 Elm Street, Boston, Mass. 2-43

COLT, BISLEY, 44 SPECIAL, 7½ BARREL, blue, case hardened frame, excellent, $40.00. 12 gauge, Lefever Nitro-Special, 28", excellent, $35.00. Colt pump rifle 38-40, poor, $5.00. Purvis Mann, Milner, Ga. 2-43

WINCHESTER 12, 16, PERFECT, $55.00; 25-35 barrel, $8.00; 9m/m shotgun, $3.00; Hawkins pad, $1.50; WANT following, extremely poor to perfect—Parker, English, Belgian, German 16, Hammer Parkers, Marlin 1897 with 16" barrel, Model 90, 410 Hornet, Birmingham Air Rifle. Black powder loaded, empty shells, Hornet, 25-20 SS. #6½, 115 primers. Single 10 muzzle loaders. Locks. 28 single non-ejector. Stevens Offhand. Woodsman, K-22. Winchester single shot fore-end. Old eyeglasses. E. Schmeling, Rockfield, Wis. 2-43

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ENFIELD .303 BRITISH, VERY GOOD, $38.00. Five boxes fresh .303 sporting ammunition, $10.00. Frederic Sanborn, 15 Garden Place, Brooklyn, N. Y. 2-43

FOR SALE—STEVENS 22/410, EXCELLENT, $16.50. WANTED—Modern Gunsmithing by Baker. Pacific Dies for 257 Roberts. 8½ Remington primers. 25 Cal. Gas checks. Sizer and lubricator. Paul Adams, Markesan, Wis. 2-43

WINCHESTER #65, 218 BEE, CHECKERED, oil finished stock, Q. D. swivels, sling, perfect, fired 10 times, 140 cartridges, $60.00. New standard stock for 70 Winchester, $12.00. M. H. Skove, 1205 W. Front St., Plainfield, N. J. 2-43

MODEL 10 REMINGTON PUMP, 12 GAUGE Modified, excellent, $40.00. Julian Sossaman, 53 N. Broad, Mobile, Alabama. 2-43

30-06 MAUSER ACTION SUKALLE BARrel, perfect, hand made stock, $100.00. .220 Swift, same, excellent, $110.00. 2 Enfield stocks, $3.50 each. Accept barrel and action on above guns. Have genuine hand made stock fitted to your guns now. Keith Stegall, Stockmaker, Box 1101, Pampa, Texas. 2-43

S. & W. 455, RECHAMBERED FOR 45 COLT, good in and out, with 45 cartridges, $40.00. Frank Stover, 7438 Flora Blvd., Maplewood, Mo. 2-43

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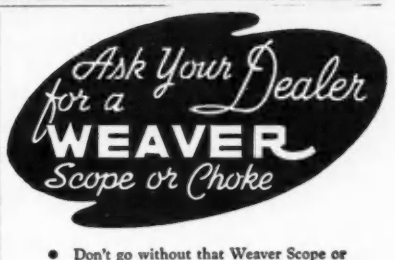
S. & W. 32-20 HEAVY FRAME, VERY GOOD, with 500 rounds of factory ammunition, both $50.00. Lyman #6 Powder Measure, $5.25. Colt Police Positive Target 22 WRF, excellent, Winchester 61, 22 WRF, new and 4500 rounds of ammunition, outfit, $115.00. Winchester 52 Standard Stock, new, $3.00. Wm. Mansfield, 7617 Gannon, University City, Missouri. 2-43

22 CALIBER HIGH STANDARD MODEL "HE" visible hammer, extra magazine; .38 Caliber Colt, O. M. heavy barrel, Roper front sight; both guns processed by Berdon; both have regular and Roper stocks; 2 sheepskin lined cases; 65 m. m. B. & L. spotting scope with sheepskin lined case; comb. pocket and stop watch (good); 55 hundred rounds .22 caliber ammunition Remington Kleanbore—reg. new and improved, also Winchester; 13 hundred rounds .38 caliber fact. rel. ½ full chge. ½ 25 yards; ammunition blocks, cleaning accessories, gun box, Freeland Stand, etc. Above guns, glass and ammunition in excellent condition. Sold only as one unit, $425.00. Geo. C. Baltasser, 321 N. Lime St., Lancaster, Pa. 2-43

SELL: 25-20 WINCHESTER '92 CARBINE, excellent, 75 factory loads, 300 empties, 100 #116 primers, 1 lb. #2400 Hercules Powder, Ideal tool and mould, $35.00. BUY: Savage utility gun, 28 gauge and 30-30. F. A. Baker, Donnelly, Minn. 2-43



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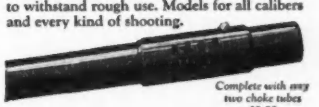

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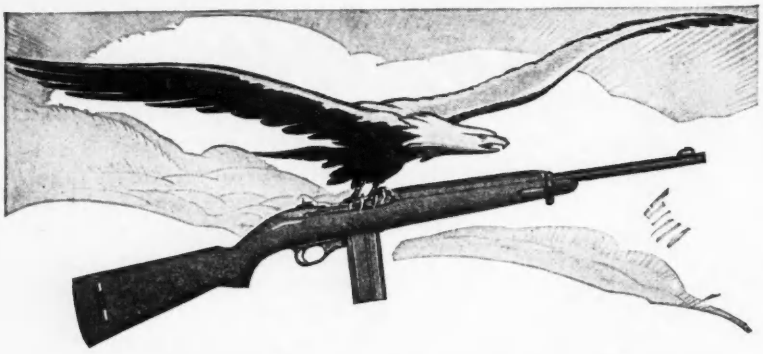

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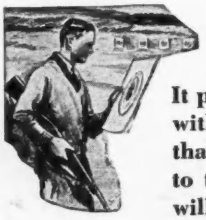

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SELL: LYMAN POLAROID TUBE, GOOD, LYman 77, AK base, new, $20.00. WANT—30-06 loading tool, large pistol and rifle primers. J. M. Blake, R. F. D. #1, Waterville, Me. 2-43

SHORT WOODSMAN, PERFECT, SHEEP ZIPper Case, M. O. only, $47.50. M. D. Maxon, 825 Aldine, St. Paul, Minn. 2-43

WINCHESTER 52, HEAVY BARREL, NO. 51405B, marksman stock, Marble-Goss rear, 77 front, perfect in, excellent out, $60.00. Fecker scope, 12X, 1¾" objective, with mounts, perfect in, excellent out, $50.00. Lester I. Smith, Culver, Ind. 2-43

PERFECT: WINCHESTER 70, 250-3000, $75.00; Winchester 12-12-28", Polychoke, rib, pad, $80.00. Excellent: Springfield 30-06, remodeled, $65.00. H & R 22 "Special", $25.00. Ranger 12-30" full, $34.50. Savage 380, $20.00. Good: Savage 32 auto, $15.00, ditto Colt, $18.50; I. J. 38, $12.00; 32 Mauser, $15.00. Fair: 45-90, $10.00. Ernest Juola, Eveleth, Minn. 2-43

FOR SALE: S & W TRIPLE LOCK NEWLY blued, excellent in, target rear, King reflector ramp front with loading tool, $75.00. WANT—Very good O.M. .38 standard barrel, 10X target scope, Winchester SS or actions, Winchester 44-40, Colt Frontiersman. H. V. Noble, 882 N. Bend Rd., Cincinnati, Ohio. 2-43

DOUBLE RIFLES. MAGNIFICENT 450 Double Hammer Rifle by Alexander Henry, Edinboro. 28" damascus barrels, fine circassian walnut pistol grip stock with cheekpiece. This rifle is a black powder, collectors item having been given John Brown by Queen Victoria, Christmas, 1875. Gold shield inlaid in stock commemorates presentation. In sole leather trunk case with loading tools, mould, flask, complete equipment. New condition. $125.00. Fine Double Hammer Rifle by Army & Navy Co., London. 26" bbl., caterpillar front and two leaf rear sights. Finely figured pistol grip stock. Weight 7¾ lbs. 360 English calibre, but will hand'e 38/55 cartridges. Resizing die and 150 cartridges with rifle, also trunk style case. Fine used order. Bargain. $75.00. Kimball Arms Company, Woburn, Mass. 2-43

FOR SALE: MARLIN 410 LEVER ACTION, PERfect, $30.00. Colt double, 10 gauge Damascus barrel, fancy stock, made in 1884, collector's item, very good, $100.00. Krag, remodeled, good, $25.00. Stevens single shot 410, excellent, $7.00. Newton 256, Redfield rear sight, recoil pad, 3 boxes cartridges, very good, $40.00. Pacific S2 Springfield sight, $3.50. R. W. Sprague, LaGrange, Ind. 2-43

K-22, EXCELLENT, $50.00. .30 AMERICAN Eagle Luger, two clips, perfect, $60.00. 4½" Woodsman, King, reflector front, micrometer rear excellent, $50.00. 16 boxes .220 ammunition, $26.00. 100 rounds .30/40 service, $4.50. 48 WJS perfect, $8.00. .30-06 Newton, bore and blueing excellent, good stock, open sights, set triggers, 75 rounds, $45.00. Winchester 12/16/26" modified, Hawkins Pad, very good, $30.00. No checks. Marshall Royce, 1118 South Second Street, Louisville, Kentucky. 2-43

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CROWN GRADE SMITH DOUBLE TWENTY 6¼ lbs. S.S.T. and 26" M. & F. Barrels. Stock 14¼ x 1¾ x 2 15/16. Shot 200 times. Perfect, $175.00; Grade IV Browning Auto 16 Mod. 28" Vent. Rib. 7¼ lbs. Stock 13¾ x 1⅝ x 2⅝. Shot 500 times. Skeet only. Excellent to perfect, $170.00. A. M. Simpson, 4525 Lindell, St. Louis, Missouri. 2-43

VERY GOOD WINCHESTER 52 STANDARD, excellent barrel, scope height 17A-48J, fine special extension, cheek piece, sling and keeper, scope blocks, $50.00. WANT—Unertl 2", 10X and Hensoldt Dural Dialytan 4X Windage. John Fritchey, 713 Second, Harrisburg, Pa. 2-43

AUTOMATIC PISTOLS: 25 CALIBER Ortgie, nickel, good, $15.00. Another perfect, $25.00. 32 Automatic Ortgie, very good to excellent, $25.00. 32 Automatic Savage, excellent, $25.00. 32 Automatic Franz stock, Berlin, perfect, $30.00. 32 Automatic Mauser, perfect, $40.00. 9mm Luger, 3¾", good to very good, $35.00. 45 Colt Automatic, Model 1911, perfect, $60.00. Rudolph's, Atchison, Kansas. 2-43

"DALRYMPLE" M86, 45-90 SHOTGUN, SHELLS, MX powder, 300 primers, shot, reloading tools, $20.00. Marlin M31, 20 gauge, new barrel, $30.00. Winchester 90, 22 WRF, ctgs., new barrel, $17.50. Stamp. Joe Cross, Anthon, Iowa. 2-43

V. H. E. PARKER, 12 GAUGE, IMPROVED CYlinder, modified, 28 inch, ejector, pistol grip, Hawkins pad, excellent, perfect inside, $80.00. Dr. C. A. Kraus, Topeka, Kansas. 2-43

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BELGIAN ARMY FRONTIER .44, FAIR, NEEDS trigger spring, $8.00 or trade for Opera Glass or Binoculars. Ray Augspurger, Winchester, Ind. 2-43

.380 REMINGTON PISTOL, VERY GOOD, $20.00. WANT—.22 Colt or S. & W. C. T. Kenning, Lakeville, Minn. 2-43

R-'06 EXPRESS, SCOREMASTER, 75T, REM. Enfield, ammunition each. WANT—Woodsman, 81A, Weaver, 7mm, 99 Sav., 75S. S. J. Walli, L'Anse, Michigan. 2-43

38 SPECIALS, TARGET SIGHTS: O. M. 4½", excellent, $55.00; S. & W., M. & P., 6", V. G., $50.00. Accept only Detective Special, like condition, as part payment, plus cash. Curtis D. Gessner, 426 Turner St., Allentown, Penna. 2-43

ENFIELD-WINCHESTER, .30-06, EN-2, sling. Stoeger, V. G., $45.00. Good Krag 30-40 Carbine, sling, $27.50. WANT—N. M. 45 Auto, 38 Super, Winchester 12 or 97 Trap 12 gauge, K-22, K-38, Colt OMT 38 Special, S. & W. Magnum. Almon Williams, Berea, Ohio. 2-43

REMINGTON AUTOMATIC 12 GAUGE, 28", full, $45.00; Swiss Scheutzen, .22 L. R., $30.00; King-Colt Woodsman, extras, $75.00. Sell or trade. A. T. Mickle, R-4, Madison, Wisconsin. 2-43

S. & W. M1917, .45, HOLSTER, CARTRIDGES, clips, empties, primers, $40.00. Marlin M90, O. & U., 16 gauge, shells, $32.50. Winchester, M94, 30-30, rifle, cartridges, $25.00. All good to excellent. Trade the works for best M70 offered. Details exchanged. Clyde Farlow, 455 Eastwood, Lindsay, Calif. 2-43

NEW MODEL 94 WINCHESTER CARBINE AND cartridges, $41.00. New R-2 and components. New Winchester .410 pump. Schmitt loading tool for .30-06. New #67 Winchester rifle with 500 .22 LR Kleanbore, $10.00. C. E. Purdie, Faribault, Minn. 2-43

VERY GOOD MODERNIZED 45 ACP; TWO EXtra magazines; leather carrier; holster; 350 F. A. and 100 Remington cartridges, $60.00 complete or want good 257 or similar rifle with ammunition. P. R. Wise, 312 Post Office Bldg., Birmingham, Alabama. 2-43

REMINGTON SPORTSMAN 12 X 30 FULL rib, perfect, $75.00. Ithaca #4 Trap 12 x 32 full, good, $45.00. Winchester 64 32 Special, very good, $50.00. Savage 99EG 250-3000, leather sling, very good, $60.00. Luger D.W.M. 30 Caliber, holster, very good, $40.00. S. & W. 44 Military .455 caliber, perfect, $45.00. Iver Johnson Target 834 DA 22 caliber, new, $30.00. Many others. List. Stamp. Ed Howe, Coopers Mills, Maine. 2-43

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WILSON HAS FOR SALE OR TRADE WINchester 94 .32 Special or .30-30, $41.00; Remington 141, .35 cal. Pump, $66.95; Winchester 70, .270 cal., $78.45; Savage Model 99 E. G. .300 Savage and .250-3000, $61.75; Remington 81 Auto. .300 Savage or .35 Remington Cals., $88.10. Wilson's, 3082 W. 25th St., Cleveland, Ohio. 2-43

WINCHESTER 70 STANDARD 270 CALIBER; Noske A scope, factory mounted, $125.00. Winchester 54 Standard Swift, new barrel, Noske B scope mounted by him, $100.00. Some 270 ammunition, list price. Springfield N. M. worn but accurate, 48 rear, Redfield front sight, $40.00. Springfield Bull Gun by Sedgley, fine tight chamber, use only Frankford ammunition, commercial ammunition will not enter chamber, $140.00. Weaver 1X scope with best mounts for Model 12 Winchester, $20.00. WANT—Remington 32 T. C. Lyman Polaroid tube sight, rusty but serviceable with mounts, $15.00. F. L. Bailey, Marion, Alabama. 2-43

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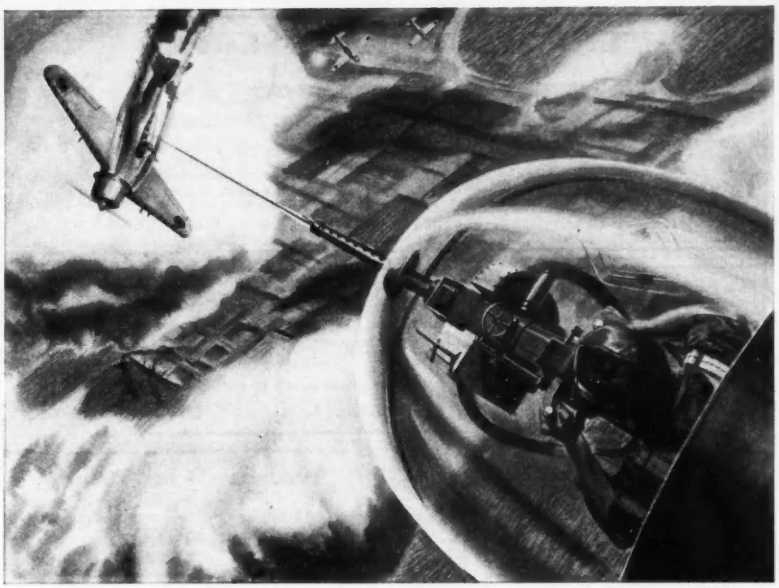

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S. & W. 44 RUSSIAN, 6", GOOD, 40 KLEANbores, $20.00; H. B. Ballard, .22, bore perfect, blocks, $25.00; W75, target, bore perfect, $30.00; 94, 30-30 carbine, new, $40.00. WANT—H. & R. S.A. Sportsman, H-A High Standard, 41 Colt Derringer. F. C. Culler, Alliance, Ohio. 2-43

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COLTS M-1911 45 AUTO, NEW BARREL, GOOD, 60 Kleanbores, $37.50. Colts .32 Auto, fair, ammunition, $12.50. Remington M-24 Auto, .22 short, fair, $12.50. WANT—W-75 Sporter or Standard 52. G. W. Pennington, Box 471, Hamlin, Texas. 2-43

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BORCHARDT ACTION AND BISHOP STOCK, $20.00. Heavy 52 barrel, excellent, $12.50. WANT—Medium heavy .257 or Varminter. Pacific dies. Earl Price, Lodi, Wis. 2-43

COLLECORS: SELL OR TRADE: PATERSON Colt 1837 Revolving-Carbine, unfired condition, $350.00. Finely made wheelock pistol, $100.00. Unfired cased DA .38 Colt, ivory and gold, belonged Bailey of Barnum & Bailey, $100.00. Unfired .41 double action Frontier; same .38; either $25.00. Want nonproduction American pistols, rare automatics, fine flint or percussion foreign, target handguns. Miller Bedford, New London, Ohio. 2-43

TRADE

TRADE—MODEL 12-12 BARREL, EXCELLENT in, needs blueing outside, with 3 tube compensator; for ribbed or ventilated in like condition. George Saumweber, Moorhead, Minnesota. 2-43

TRADE—1000 OR MORE OF PALMA MATCH 22 L. R. for equal value of 22 Hornet ammunition. Russell Allen, 422 S. Schuyler, Ottumwa, Iowa. 2-43

TRADE—1000 REMINGTON KLEANBORE HI-Speed 22 Long Rifle Caliber—for Remington 8½ or Western N. C.—N. M. 8½ Primers. R. W. Crumrine, 821 Lincoln, Clay Center, Kansas. 2-43

TRADE—EXCELLENT COLT .45 AUTO, 6 CLIPS; for 357 Magnum. J. M. Gonder, 540 Thomas Ave., Forest Park, Ill. Forest 383. 2-43

TRADE—COLT AUTOMATIC .32, EXCELLENT, with 120 cartridges, for Smith & Wesson .38 or .44 Revolver with 6" barrel in fair condition. Ward Koozer, 610 East D St., Grants Pass, Oregon. 2-43

TRADE—HIGH STANDARD 22 SHORT, NEW condition, King's micrometer rear, beaded front, ammunition; for Marlin 22-410 or? Fox 12 double long range, 3" chambers, HE grade, ejectors, recoil pad, $65.00. Dr. Chas. C. Adams, Longview, Texas. 2-43

TRADE—COLT ACE AND AMMUNITION FOR good 8mm Movie Camera or Projector. George Neff, Jr., 904 Brownell Ave., Glendale, Mo. 2-43

TRADE—MOUNTED BIG GAME HEADS. WANT—25 Remington Autoloader or 257 Bolt. John Lottes, Cody, Wyoming. 2-43

TRADE—AMMUNITION: 37, 35 REMINGTON Auto; 20, 25 Remington; 50, 45 Revolver; 100, 38 Colt Long; 20, 8mm Mauser. Exchange all for good S. & W. Military or Police Revolver, or .45 Colt Auto. Ira Moody, McGregor, Iowa. 2-43

TRADE—MODEL 70 300 MAGNUM, VERY good, 75 cartridges. 99 Savage 250-3000, solid frame, excellent, 80 cartridges. WANTED—.30-06, shotgun equal condition. F. L. Ferguson, Roaring Springs, Texas. 2-43

TRADE—9 CANADIAN WILD GEESE. WANT Over & Under 12 gauge. Bennett Reek, Walworth, Wisconsin. 2-43

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TRADE—GOOD 7.63 MAUSER PISTOL and CARtridges. WANT—Springfield. Frank Huotte, 1848 Phillips, Butte, Mont. 2-43

TRADE—NEW WINCHESTER ENFIELD BARrel or 100 1936 N.M. .30-06 ammunition or 1000 116 or 500 115 Winchester primers. WANT—U.S.N. Public Property Colt or military flasks. Will buy Kentucky rifle. Joseph Spicer, 17 Dewey Ave., Wharton, N. J. 2-43

TRADE—COLLECTOR'S ITEM, GENUINE Christopher Spencer 12 gauge Damascus, detachable choke, Italian walnut, completely refinished, extra new Paradox barrel. WANTED—Excellent to perfect, Russian .38-44 Target. Ladysmith K-22, B & M measure, Parker or English, 16 or 20; wood immaterial. Ray Smith, R1, Selinsgrove, Penna. 2-43

TRADE—38/6 O. M. holster, ammunition for 52 Sporter or Winchester 70/06. Vic Breneman, Hershey, Pa. 2-43

TRADE—QUANTITY OF WESTERN 6½ Primers for 48, 55, 56, 87 gr. Sisk or similar bullets. Paul Ratliff, N4912 Market, Spokane, Wash. 2-43

WANTED

WANTED—ANTIQUE FIREARMS: POWder flasks, gun books. Will buy entire collections, cash. James Serven, Box 1777, Santa Ana, Calif. tf

WANTED—FECKER 1½" OR 1⅛", 10/12X; Unertl 1½" or 1⅛", 10/12X; Lyman Targetspot or Super Targetspot, 10/12X. Charles W. Riley, 231 Hosea Avenue, Cincinnati, Ohio. 2-43

WANTED—NEW ENFIELD OR SPRINGFIELD barrel, Lyman Alaskan Scope, Mauser 98 action. Excellent to perfect, preferably engraved: Colt Ace, O.M. 22, Woodsman, K-22, S.A.A. 45, and M70 Winchester 06. Lt. C. E. Haines, Magnolia, Ark. 2-43

WANTED—PISTOLS, WILL PAY $35.00 OR more for K-22, Ace, Match Target or other 22 or 38. $75.00 for 357 Magnum. Also want other pistols, .30-06 rifle, scope and ammunition. T. A. Hawn, Box 35, Station A, Los Angeles, Calif. 6-43

WANTED—PISTOL GRIP STOCK FOR WINchester 21 Skeet 20 Gauge. Tom Sharp, 316 Hot Wells Blvd., San Antonio, Texas. 2-43

WANTED—COLT NATIONAL MATCH .45 AUTOmatic Pistol, adjustable rear sight. .22-.45 Service Model Conversion Unit. Excellent or perfect. Will purchase separately. Write details and price. Charles B. Cross, Jr., 215 Park Road, Portsmouth, Virginia. 2-43

WANTED—22-3000 R-2 LOVELL SHELLS loaded or unloaded. Lt. Comdr. R. W. Pickard, 705 Beverly Dr., Alexandria, Virginia. 2-43

WANTED FOR CASH—PRISM BINOCulars, Field Glasses, Microscopes, Sextants, Surveyors and Builders Levels. Give description and price in first letter, all mail answered. Big Ben Mercantile & Loan Co., 179 Third Street, San Francisco, Calif. tf

WANTED—FINELY ENGRAVED MAUSER action or rifle, with double-set triggers; Buchel Luna or Anshutz Free Pistol. J. E. Gebby, 46 S. Willowgrove Ave., Dayton, Ohio. 2-43

WANTED—N.M.N.C. PRIMERS. PACIFIC TOOL steel dies for: .300 Savage, .30-30, .35 Rem., 8mm, bullets for same. Foreign, domestic ammunition for 7mm, 8mm. Clean 1898 Mauser Rifles, parts. Foreign Military Rifles, Bayonets, describe. Edwin Rennolds, 425 Puritan, Highland Park, Mich. 2-43

WANTED—EXCELLENT SAVAGE MODEL 45, calibre .30-06, for cash. W. E. Plamann, Appleton, Wisc. 2-43

WANTED—DEER RIFLE, GOOD PLUS. PREfer Winchester model 86-33 calibre. Model 94 in 30 or 32 calibre. Model 71, Long barrels, solid frames. Describe fully. O. W. Rewey, Marshfield, Wisc. 2-43

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WANTED—UNSERVICEABLE U. S. AND FOReign made machine guns, also Foreign military automatic rifles as relics. D. Smith, 17301 Wisconsin, Detroit, Michigan. 2-43

WANTED—AMMUNITION: 22 Shorts; Long or Long Rifle. State quantity. Top prices paid. Percy Hoffman, 36 S. 4th St., Harrisburg, Pa. 2-43

WANTED—AUTOMATIC SHOT GUN, BROWNing or Remington, 12 or 16 gauge, 3 or 5 shot, standard cylinder bore, 26" barrel; ventilated rib and Weaver or Cutts choke preferred. Richard R. Foster, 430 Notre Dame Street, New Orleans, La. 2-43

WANTED—STRAIGHT-LINE RELOADING TOOL, perfect mechanical condition. Also 2-R Lovell components. Also 35 m.m. camera F 3.5 built-in rangefinder, perfect optical and mechanical condition. Sell: S. & W. K-22, Pachmayr, Heiser holster, very good, $25.00. A. M. Gault, 616 Lincoln, Laredo, Texas. 2-43

WANTED—SAVAGE MODEL 23AA, .22 LONG rifle, excellent to perfect. Model 70 or other suitable action for Varminter. Ralph D. Baxter, Purcellville, Virginia. 2-43

WANTED—SHORT WAFFENFABRIK MAUSER action with double set triggers, barrel and stock immaterial. Also 55 gr. W-M 8-S bullets. Wm. B. Curtis, Hillsboro, Virginia. 2-43

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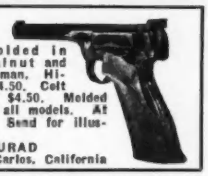

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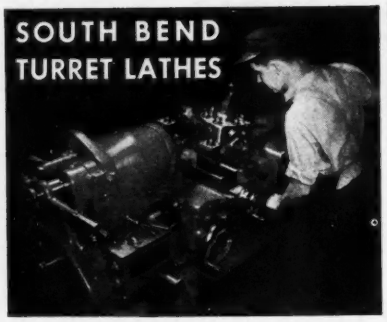

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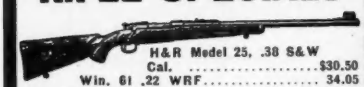

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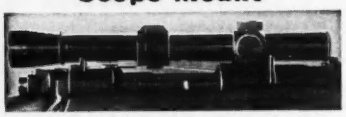

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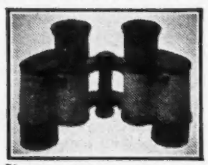

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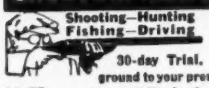

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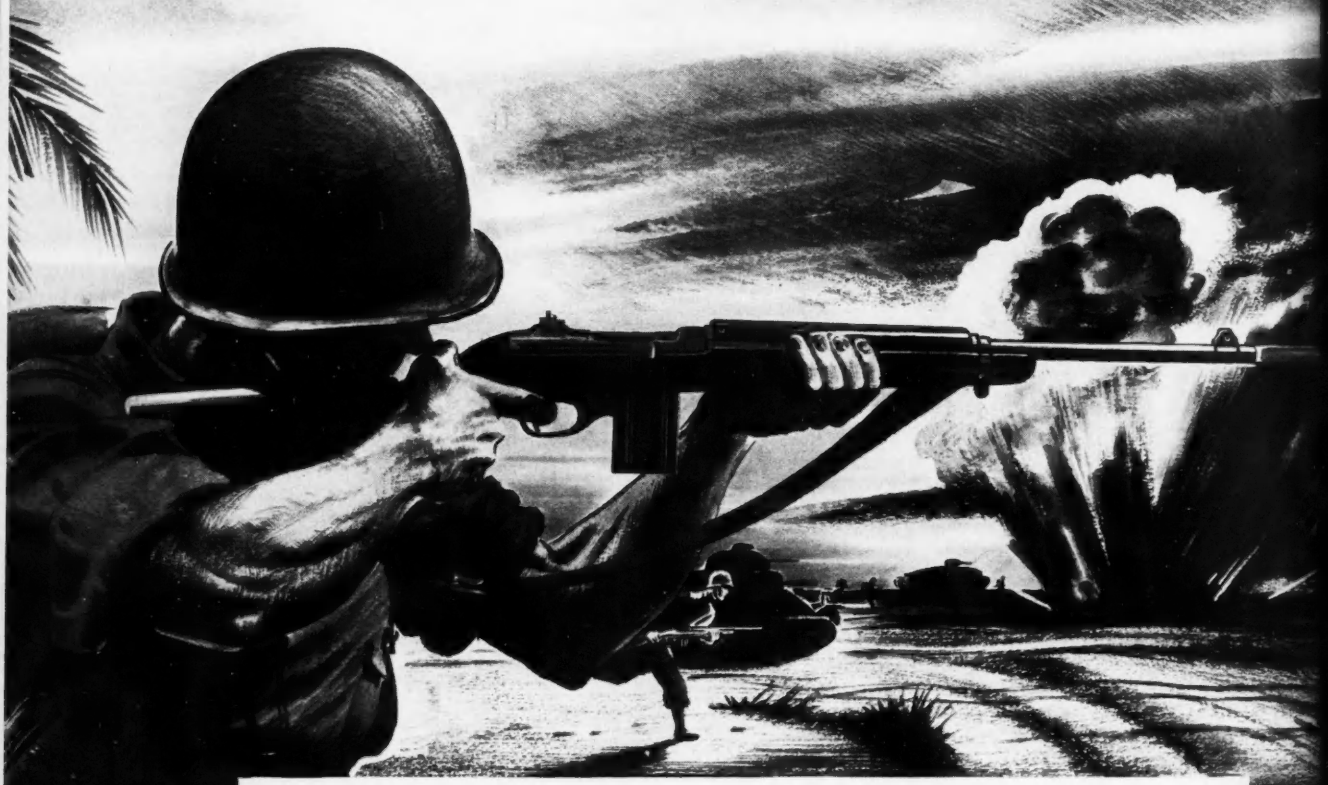

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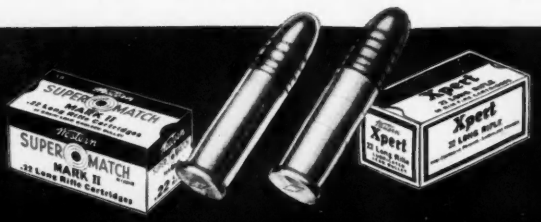

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